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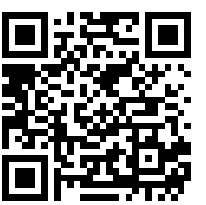

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Proceedings of

Sixth Annual Convention

Atlanta, Ga.

October 27-28

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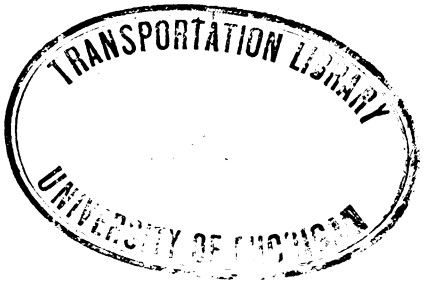
SIXTH ANNUAL CONVENTION

of the

TELEPHONE PIONEERS *of* AMERICA



HELD AT ATLANTA, GEORGIA
OCTOBER 27 AND 28
NINETEEN HUNDRED SIXTEEN

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CONTAINING

COPY OF THE CONSTITUTION AND BY-LAWS

ALPHABETICAL ROSTER OF THE TELEPHONE PIONEERS OF AMERICA

THE FULL PROCEEDINGS OF THE ATLANTA MEETING

THE ADDRESSES OF
MR. L. B. McFARLANE, MR. F. H. BETHELL
MR. C. E. SCRIBNER, MR. F. A. PICKERNELL

and other matters of interest

ADDRESS ALL COMMUNICATIONS TO THE

TELEPHONE PIONEERS OF AMERICA

ROSWELL H. STARRETT, SECRETARY
195 BROADWAY, NEW YORK CITY

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TELEPHONE PIONEERS OF AMERICA

ORGANIZED NOVEMBER 2, 1911

OFFICERS FOR 1917

President

THEODORE N. VAIL

Vice-Presidents

THOMAS D. LOCKWOOD EDGAR F. SHERWOOD
JAMES T. MORAN BEN. S. READ

Secretary

ROSWELL H. STARRETT

Treasurer

GEORGE D. MILNE

Executive Committee

THOMAS D. LOCKWOOD, Chairman
FRANK A. PICKERNELL RICHARD T. McCOMAS
JAMES ROBB ALBERT LINCOLN SALT
CHARLES H. WILSON

Corresponding Secretaries

(Address in care of Local Telephone Company)

P. KERR HIGGINS . . . . . St. Louis, Mo.
DARWIN P. FULLERTON . . . San Francisco, Cal.
LAWRENCE M. HOLLIDAY . . . . Omaha, Neb.
WILLIAM J. MAIDEN . . . . . Chicago, Ill.
KENNETH J. DUNSTAN . . . . . Toronto, Ont.
HOWARD B. EMERY . . . . . Boston, Mass.
WILLIAM J. McLAUGHLIN . . . . Philadelphia, Pa.
HENRY W. BELLARD . . . . . Denver, Col.
GEORGE W. FOSTER . . . . . Dallas, Texas
EDWARD E. BAWSEL . . . . . Nashville, Tenn.
WILLIAM H. ADKINS . . . . . Atlanta, Ga.
WILLIAM T. NAFF . . . . . New Orleans, La.

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ATLANTA

THE colony of Georgia, named in honor of King George II. of England, was founded by James Edward Oglethorpe who headed a party that settled at Savannah in the early part of 1733. His followers had to endure many of the usual hardships which the founders of other colonies suffered, and they soon became dissatisfied with certain laws. In 1734 Oglethorpe returned to England to refute charges made against him by the colonists. Although he was cleared of all blame, he did not again come to America. Later, the trustees of the colony turned their charter over to the crown and Georgia remained a royal province until the Revolution.

Georgia, the youngest of the thirteen colonies, took a comparatively small part in the Revolutionary war. Toward the end of 1778 the British captured Savannah and Augusta and restored the British governor in the state. The war was then carried to South Carolina and Virginia with varying fortunes on either side until Cornwallis was captured.

As the population began to increase after the war, the question of making the Cherokee Indians relinquish the land became a vital one. In 1827 a Georgian delegation secured the passage of an act by Congress, providing for the removal of the Cherokees to a territory west of the Mississippi. A small number obeyed this law. The disputes continued. However, in 1836 they agreed to give up all lands east of the Mississippi for $5,000,000, Georgia being entitled to take possession of the territory on May 24, 1838. They showed no sign of moving on that date, but the persuasive arguments of two state regiments were finally crowned with success.

Seven years later, in 1845, the Georgia Railroad was built to Augusta. The first through train came to Marthasville (Atlanta) bearing the president of the road, railway magnates and different persons. The whole population turned out and wild excitement prevailed. The town began to grow rapidly, giving promise of great future development, and the citizens sought a less commonplace name for it. Atlanta, suggested by J. Edgar Thompson, chief engineer of the Georgia Railroad, struck the popular fancy and was adopted. During the following year the Macon & Western Railroad was completed.

It was in the station of this latter road that the first telegraph in Atlanta was installed in 1850, an old style paper register machine, but a thing of wonder to the residents of the town. The operator of this telegraph was Col. D. N. Sloan, who consequently holds the record of being the first telegraph operator Atlanta ever had. It is related that General Kossuth, the Hungarian patriot, on passing through Atlanta to Savannah, went to Mr. Sloan's office to send a telegram to Savannah. Mr. Sloan asked for the money, whereupon he replied he was not in the habit of paying for telegrams and told who he was. Sloan maintained that he had no instructions not to charge the General, whereupon the Hungarian angrily paid the bill.

When the Civil war was declared Georgia became the workshop, storehouse, granary, and arsenal of the Confederacy. Atlanta, besides being a rallying point for volunteers, was a depot where the munitions of war were manufactured and deposited. During the bitter conflict it was a city of hos-

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pitals, a collection of barracks, a shelter for refugees. In 1864 General Jos. E. Johnston with 50,000 men was forced by General Sherman with 100,000 men to retire from Dalton, Ga., to Atlanta. General Hood, succeeding Johnston, made three attacks on the Union army, but was driven back with great loss of life. Sherman executed one of his flank movements, shifted his whole army on Hood's line of supplies, and compelled the evacuation of Atlanta. This was a crushing blow to the Confederacy. From that time on its supply of war munitions was greatly reduced. The city which had been such a stronghold for the Southern cause was not spared a bitter chastisement—the trial by fire. With 60,000 men Sherman started on his march to the sea, leaving Atlanta in ashes.

Its natural advantages, however, caused it to be rapidly rebuilt after the war. In 1878 it was made the capital of Georgia and in the fall of 1895 the Atlanta or Cotton States & Industrial Exposition was held there with the view of presenting the agricultural, manufacturing, and mineral resources of the Southern States. Today Atlanta possesses the State Library with over 80,000 volumes, a valuable geological collection, and numerous institutions of education, such as the Georgia School of Technology, a branch of the State University at Athens, Atlanta University, Clark University, Atlanta Baptist College, and two medical schools. Among the more important buildings are the State Capitol, courthouse, city hall, custom house, opera house, a Carnegie library, and a number of attractive hotels. Atlanta has two parks of interest, Grant and Piedmont, in the latter of which were erected the buildings for the Atlanta Exposition. Fort McPherson, a government army post, is in the vicinity of the city.

In 1910 the population of Atlanta was 154,839, a gain of approximately 72 per cent. over that of 1890.

The climatic advantages of the city are unrivaled. Situated among the spurs of the Blue Ridge, on the watershed dividing the Atlantic Ocean and the Gulf of Mexico, subject neither to the extreme heat nor to the cold of the northern states, the city has been said to have one of the most delightful climates of the globe.

Atlanta was chosen as one of the 12 cities wherein, under the Banking Act of December 23, 1913, Federal reserve banks were established for the purpose of mobilizing the reserves of the banking system and providing means for united action in time of financial crisis.

The first Bell telephone exchange in Atlanta was opened in June, 1879.

In 1888 the exchange was located on the third floor of the building at the corner of Marietta and Broad Streets. In the front part were the offices of the superintendent, the manager, and the assistant manager. There was another room for the inspectors and linemen; then came the battery room, while a long inside room in the rear constituted the operating room. A student operator was placed at the board, told how to locate numbers, and later permitted to put on a headphone and listen in on an operator. The position of instructor was created in October, 1899, but for several years all teaching was done in the operating room.

With the sort of equipment then in use the trials of the operators were legion. At the call-wire board any number of subscribers could be cut in on any position so that one operator could have every telephone in the city and in rush hours an operator generally had about a hundred telephones to handle. There was no way for an operator to know when a conversation was finished

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except by holding the test plug against the connecting plug. If one operator were too busy to disconnect immediately after the subscribers had hung up, and a second operator had a call for one of the lines, the latter would call out: "Disconnect ———!" This made much noise and confusion in rush hours especially.

There were eighteen girls for day duty and five or six men for night work. The men began to come on at 6 p. m. and no girls stayed later than 8 p. m. A couple of men would remain all night but all the men seemed inclined to "talk up" to the public, for which reason in 1890 or 1891 girls were put on night duty.

In December, 1893, the exchange was moved to a new building at the corner of South Pryor and Mitchell Streets where many conveniences, hitherto lacking, were provided for the operators. The toll or long distance board was in the same room as the local board. The opening of the toll line between Macon and Atlanta in November, 1894, was considered quite an occasion, being duly celebrated by a banquet given by the manager, W. T. Gentry (now President of the Southern Bell Telephone and Telegraph Company), to officials, newspaper reporters, and operators.

In the month of December, 1897, the construction of a $50,000 switchboard was begun. It was completed in March, 1898, and the operators began to "watch" for signals instead of "hearing" them.

In the year 1891 Atlanta possessed 1,050 telephones with about 65,533 population so that for every 65 people there was approximately one telephone. Today Atlanta's population is 226,400 with 25,391 Bell telephones at their disposal, making a ratio of about one telephone for every nine persons.

Atlanta can claim the distinction as being the capital of Georgia, its largest city and one of the largest in the south, an important railroad centre and the most enterprising commercial city of the South. Cotton, one of the chief sources of wealth in Georgia, probably constitutes Atlanta's main export. Tobacco, rice, and livestock also are exported in large quantities. Of late years it has come to be a manufacturing city, producing cotton goods, cotton-seed oil, bags, furniture, flour, lumber, etc. So well known is the social life of Atlanta that but a passing word is sufficient.

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THEODORE N. VAIL

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SIXTH ANNUAL CONVENTION

ATLANTA, OCTOBER 26-27-28, 1916

HEADQUARTERS, PIEDMONT HOTEL
TELEPHONE, IVY 1219

THURSDAY

5:00 p. m. Pioneers' Special arrives at Terminal Station.
5:15 p. m. Registration, ground floor, Piedmont Hotel.
8:30 p. m. Pioneers' "At Home," first floor, Piedmont Hotel, informal.

FRIDAY

Have you registered?

9:30 a. m. Convention opens, ninth floor, Piedmont Hotel.
12:00 m. Street cars leave Piedmont Hotel for Ladies' Luncheon at Piedmont Driving Club.
2:30 p. m. Convention reconvenes, ninth floor, Piedmont Hotel.
7:00 p. m. Banquet, main dining-room, first floor, Piedmont Hotel.

(Entertainment features by members of the Telephone Society of Atlanta)

SATURDAY

Left open for shopping, sight-seeing, visits to the telephone offices and the like.
12:00 m. Automobiles leave Piedmont Hotel for Barbecue at Druid Hills Club.
12:15 p. m. Automobiles leave Georgian Terrace for Barbecue at Druid Hills Club.
1:00 p. m. Barbecue at Druid Hills Golf Club.
2:30 p. m. Automobile sight-seeing tour around Atlanta, leaves Druid Hills Club ending the hotels about dusk.

SUNDAY

6:30 a. m. Pioneers' Special leaves for Chattanooga, Asheville, and the East.

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REPORT OF PROCEEDINGS

OF THE

Sixth Annual Convention of the Telephone Pioneers of America, held at the Piedmont Hotel in the City of Atlanta, Georgia, October 27, 1916

FRIDAY, OCTOBER 27, 1916
MORNING SESSION

THE sixth annual convention of the Telephone Pioneers of America was held at the Piedmont Hotel Assembly Hall in the city of Atlanta, Georgia, on the 27th day of October, 1916, and was called to order at 10:30 A. M. by Vice-President Thomas D. Lockwood.

VICE-PRESIDENT LOCKWOOD (presiding): The meeting will please come to order. Ladies and Gentlemen of the Telephone Pioneers of America, it becomes my first duty on behalf of our distinguished President, Mr. Theo. N. Vail, who much to his own regret has been prevented from being with us this morning, to welcome you all to the Sixth Annual Meeting of the Pioneers' Association.

Speaking as I am in the person of Mr. Vail, the President, and therefore being unaccustomed to public speaking, I have some hesitation in endeavoring to frame the words, which he would have liked to have framed, but I know that he is very sorry indeed not to have been with us this morning. He has counted upon being present at this meeting for nearly a year, and he is, as I have said, a disappointed man. I do not know whether his disappointment is equal to ours, but it probably is even deeper.

It is a great pleasure to
it is hardly my province to
heartfelt welcome myself al
should say so much as a start

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I have the great pleasure and honor of presenting to you His Honor James G. Woodward, Mayor of Atlanta, who will address you and give you a welcome on his own part and on the part of the City. [Applause].

ADDRESS OF WELCOME BY HON. JAS. G. WOODWARD, MAYOR OF THE CITY OF ATLANTA.

Mr. President, Members of the Telephone Pioneers Association, Ladies and Gentlemen:—

It is quite a pleasure to me to extend the official welcome of this City to this most splendid audience. It is very seldom that Mayors have the opportunity of extending a welcome to an organization of such wide scope, as this covers the entire American soil. The very name of your organization means that you are together from long service, affiliation and association that have been pleasant, and it is keeping you ever mindful of it by the formation of this Pioneers Association.

It has been my pleasure to be in close contact for the last twenty-five, nearly thirty, years with the head of the Telephone Companies of this part of the country, and those associations have been good for the community and the upbuilding of the electrical business, not only of telephones, but of the entire electrical business. Your President here has taken an interest in this business for the last twenty-five years to my certain knowledge. Our association has been pleasant, and to-day, while sitting here as one of your number, and being informed about his illness, I felt much grieved to hear it, but before the time came for me to speak a few words to you, I was pleased to see him walk in [prolonged cheering for Mr. W. T. Gentry], and may he be permitted to walk in to the deliberations of this Pioneers Association for many years to come. [Applause]. I feel satisfied from the applause, that you give the mention of his name, that he stands high with you. I want to be pardoned only by you, not by myself, for alluding personally to anybody, but I think Mr. Gentry deserves it anywhere and at any time. [Applause].

I can appreciate the nature of your organization from the simple fact that I belong to one myself, that I retain membership in, of nearly fifty years standing; and the long association in the years back, although I have left it for more than seventeen years, with the men, and the upbuilding of the same, during all those years, were pleasant to me. I liked them, and I expect to remain with them as long as life

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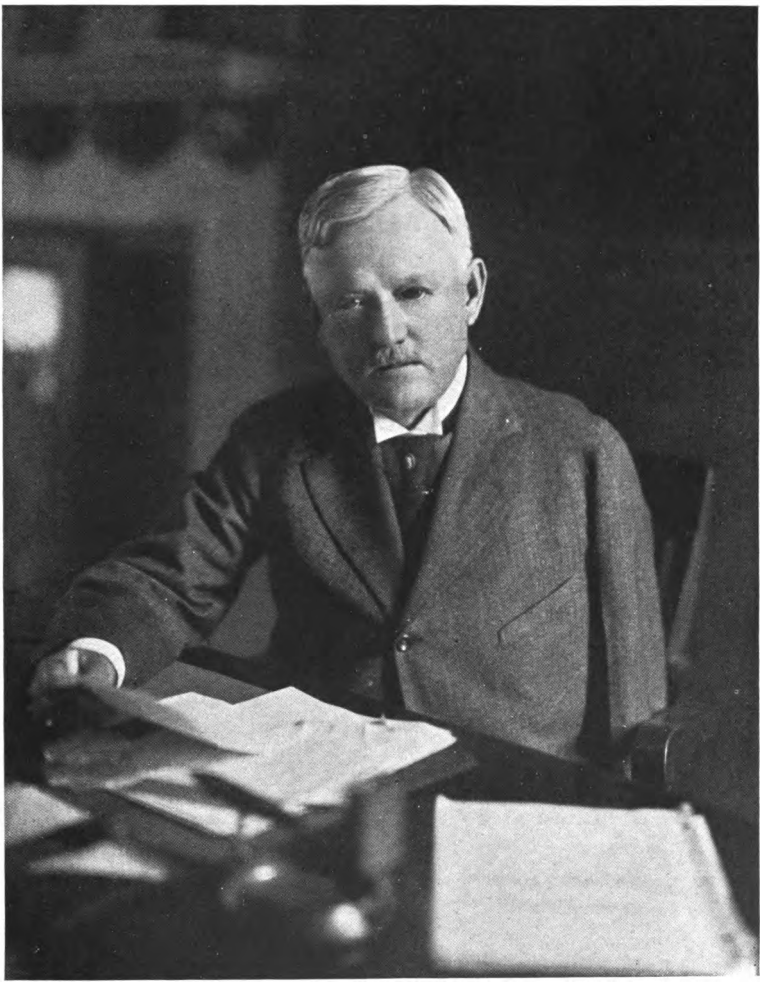

W. T. GENTRY

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lasts, and I presume that is the object and intent of this organization. Those that have built up the telephone business, those that are building it up, and holding it together to-day, feel a pride, a conscious pride, in the work, and in the associations that they have enjoyed during all these long years, and it is but proper, but right, that they should commemorate by meeting annually, getting together, and shaking hands, and talking over the past. It is a pleasure that will last them all the years of their lives.

I want to say—unfortunately I omitted it in the first instance—that this is a double pleasure to me, because you have so many ladies in your organization. Wherever the ladies are, things are obliged to be all right!! [Applause]. They are a kind of a check valve on the men; it is always nice to have them about, and it speaks well for an organization that admits ladies, for it puts them upon a higher plane.

In addressing and looking over this audience, I am not looking into the faces of the men who get the money out of it. They are conspicuous largely for their absence. I am looking into the faces of the men who have made money for the men that have got the money. [Laughter]. Nearly all those, I expect, that I see here, are the employed part, the salaried part. You notice all over the world it is not the man that has got the money that used his brains to make the money. Somebody else has made it for him, and they got it!!! They have the financial acumen; anyhow they got hold of the money, whether you got hold of any of it or not.

In conclusion let me say this: it is a great pleasure to me, as the chief executive of this City, to extend a cordial greeting and welcome to this most splendid body. May your hours be pleasant; may every wish that you desire be gratified, and I believe that the local people will see that you are handsomely taken care of. When you retire from our City, may you carry with you that word of encouragement, that word of praise, that word that means more to us than the dollars that may be spent here; may you go back to your homes and say "well done for Atlanta; we have been there; we were treated nicely, and we sound her praises"; and may the Good Lord, Who looks over all of you, when the deliberations of this body are completed, carry you safely back to the very distant homes of many of you (as your organization covers the entire continent), and may you find those you love enjoying good health and prosperity.

I thank you for the privilege of being here, and giving you these few words of welcome. [Applause].

VICE-PRESIDENT LOCKWOOD (presiding): I am sure that I express the sentiment of every person present, when I thank His Honor, the Mayor, for his presence on this occasion, for his very

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hearty words of welcome; for what has touched us most deeply, his courteous allusion to our dear friend, Mr. Gentry; and also for the evident regard that he has of all of us, the telephone "Bell," and you may spell it with an "e" (Belle) at the end if you like. [Applause].

The great Southern Bell Telephone Company would feel that I was somewhat remiss, if it were not also called upon to welcome you to the South, and to Atlanta, one of its chief Cities, a City, which, when I was here last twenty-six years ago, had wires suspended all over the streets, although now it is very difficult to see one.

I am going to ask its first Vice-President, Mr. J. Epps Brown, to give you a word of welcome on this occasion.

ADDRESS OF WELCOME BY MR. J. EPPS BROWN.

Mr. Chairman, Ladies and Gentlemen:

I regret exceedingly Mr. Gentry's inability personally to welcome each of you upon this occasion, as he intended to do; unfortunately he has been confined to his bed for two weeks with a serious throat trouble, and is out to-day for the first time because his doctors couldn't keep him in, but under explicit instructions not to talk, which I assure you is a serious handicap in his particular case. [Laughter].

He has requested me to express for him not only a hearty welcome to Atlanta, but the personal wish that each and every one of those present may enjoy every minute of your stay, and may go away with pleasant recollections and pleasant impressions of this visit. That wish is shared by every one connected with the Southern group.

I am further delegated to say that, if any of you see anything in this City that you want, you simply take it without asking [Applause], and Mayor Woodward has delegated me to say that, if any of you get in the guardhouse, he will see that you are gotten out. [Applause].

[MAYOR JAS. G. WOODWARD: That's all right, but I don't think any of them will get there!!!]

The only exception which we make to this broad promise, that you may have anything that you want without asking for it, is the person of Fred Houser, who is the inimitable Secretary of our Convention Bureau. We are not inclined to give him up to anybody. [Applause].

VICE-PRESIDENT LOCKWOOD (presiding): The next item of our order of business is the Minutes of the last meeting and action thereon. It is generally the custom, I believe, in gatherings of this

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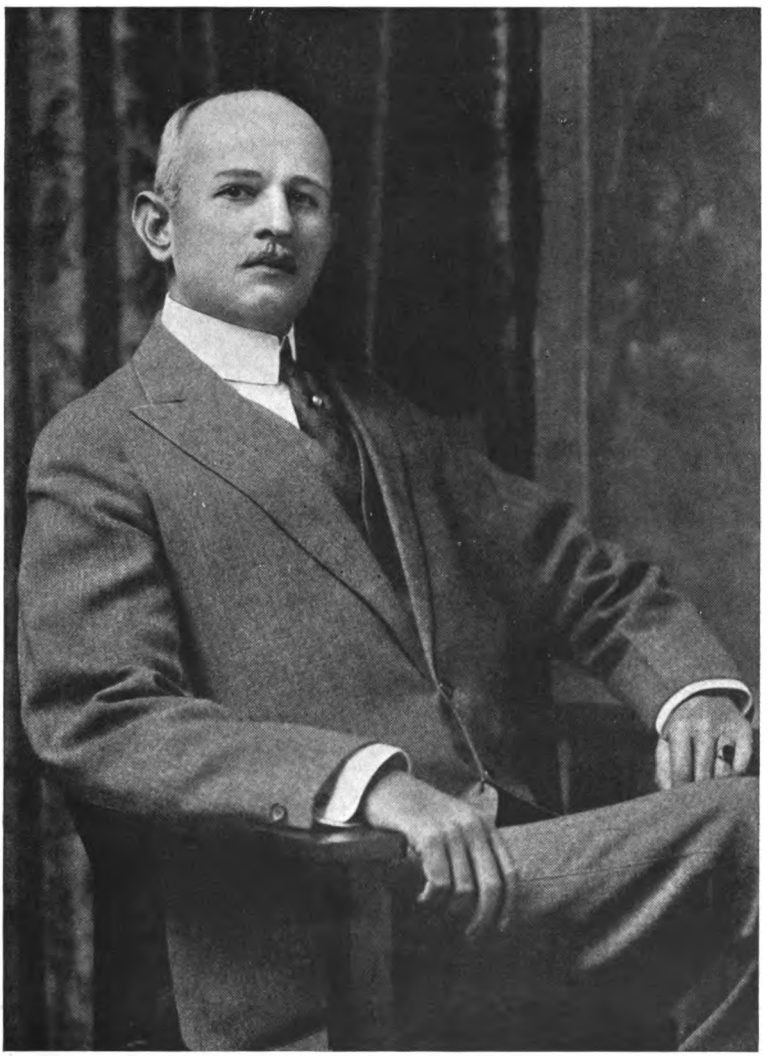

J. EPPS BROWN

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kind for someone to make a motion to dispense with the reading of the Minutes of the last meeting, and the Chair wishes to say that such a motion is entirely in order, unless the Secretary has something particular that he wants to say about it. Mr. Secretary?

SECRETARY STARRETT: Simply, Mr. Chairman, that the Minutes of the previous meeting have been printed and distributed among the members. I move that they be approved as such.

This motion was seconded and carried.

VICE-PRESIDENT LOCKWOOD (presiding): I think we next have to take up Reports of Committees. Have you the report of the Executive Committee, Mr. Secretary?

SECRETARY STARRETT: The Executive Committee has no report to make, Mr. Chairman.

VICE-PRESIDENT LOCKWOOD (presiding): This Chairman is Chairman of the Executive Committee, and he ought to have known that without reference to the Secretary, but he sometimes has something to do, and on that principle he will hold himself excused. [Applause]. How about the Membership Committee?

SECRETARY STARRETT: They have submitted no report.

VICE-PRESIDENT LOCKWOOD (presiding): This is evidently going to be a very brief business meeting, much to the joy of all of us, I am sure.

We are really getting to something now. The next item in the order of business is "Reports of Officers." The Secretary cannot offer the same explanation or excuse for this report, because it is his own. I call for the Secretary's report.

TO THE OFFICERS AND MEMBERS OF THE TELEPHONE PIONEERS OF AMERICA.

Herewith is submitted the Secretary's Report from January 1, 1916, to September 30, 1916.

MEMBERSHIP REPORT.

Membership Jan. 1, 1916		1,843
Applications Approved by Executive Committee		98
Total Membership		1,441
Deaths Jan. 1, 1916, to Sept. 30, 1916	14	
Resignations	1	
Dropped for Non-payment of Dues	56	71
		1,370
Net Gain in Membership		27

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DECEASED .

Enos M. Barton	Biloxi, Miss	1877
John H. Boeggeman	Pittsburg, Pa	1877
Belvidere Brooks	New York, N. Y	1881
Thomas Dusenbury	Paterson, N. J	1883
James W. Gillespie	Harrisburg, Pa	1883
William T. La Roche	Ocean City, N. J	1887
Eardley C. Michell	Ridgewood, N. J	1893
William R. Moir	New York, N. Y	1889
Henry W. Pope	Bellerose, L. I	1877
Howard C. Root	Brooklyn, N. Y	1879
William F. Sherwood	Philadelphia, Pa	1890
Abraham K. Thompson	New York, N. Y	1878
James B. Whalen	Leadville, Colo	1882
Charles J. H. Woodbury	Lynn, Mass	1886

R. H. STARRETT,
Secretary.

VICE-PRESIDENT LOCKWOOD (presiding): You now see why there is no report from the Membership Committee. The Secretary with his usual zeal has merged the report of the Membership Committee with his own, he having the not unusual accomplishment and tendency of Secretaries, which is to assume all of the business of the institution. [Laughter]. We are to be congratulated on having such a Secretary. [Applause]. I want to ask the Secretary if there are many of the dues unpaid?

SECRETARY STARRETT: At the meeting of this Society in 1915 an amendment to the By-laws was adopted, providing for the dropping from membership of all those Pioneers who had failed to pay their last two years' dues, or in other words who were in arrears for two years' or more dues, and this report that I have read comprises all of the Pioneers who had failed up to January 1st to pay, or were in arrears for two years or more. I am happy to state, Mr. Chairman, that since that time two of these Pioneers who were dropped have applied in the necessary way for reinstatement by submitting a formal application for reinstatement and a check for the arrearages. That brings us down to 1916, which practically has not expired, and will not until December 31, 1916. So we may say that our membership is practically all in good standing.

VICE-PRESIDENT LOCKWOOD (presiding): The Association, I am sure, will be much pleased at hearing so favorable a report upon this point. When we met at Richmond—many of you were with the Association at Richmond, and you may recollect that upon the same inquiry there was found there to be rather a bad state reported.

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R. H. STARRETT

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A great many members were in arrears, and I think your present Chairman took that opportunity of remarking that since he had been in Richmond he had had forty-seven invitations to drink, and he had been there but eighteen hours; and, he continued, that it was not any use for a member two years in arrears to propound to him the celebrated conundrum, which the Governor of North Carolina is reputed to have propounded to the Governor of South Carolina. Of course, that authority would not go down here [Laughter], and therefore we are all very glad that the report is such a good one.

Now, gentlemen, you have heard the Secretary's report. What disposition will you make of it?

MR. LELAND HUME: I want to move the adoption of the report, but in that connection I want to state that there are several Telephone Pioneers present who have not been admitted to good and regular standing. They have the necessary five dollars; they have the necessary number of years of service, honorable service; and, if the Executive Committee would accept my suggestions, they will meet promptly at the adjournment of this morning's session, and let those friends feel that they are not only "at home in their father's house," but that they are in good and regular standing.

I move the adoption of the report, and will suggest that the Committee meet and act on these applications that are before us.

The report on this motion was duly adopted.

VICE-PRESIDENT LOCKWOOD (presiding): The other matter which Mr. Hume has spoken of, is a very important one, and certainly meets the approbation of the Chair. I don't think the Membership Committee is here, but we will take such steps as to put the ladies and gentlemen of whom Mr. Hume has spoken, in complete membership, subject to the turn-down of the Membership Committee—which I assure you is a very arbitrary concern, and turns the officers down any time it has a mind to. Will you look after that, Mr. Secretary?

SECRETARY STARRETT: I will.

VICE-PRESIDENT LOCKWOOD (presiding): Next is the Treasurer's report.

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TREASURER MILNE: This, you understand, ladies and gentlemen, is a report for only a part of the year, but the report for the full year will be covered in the usual pamphlet, which is sent out to the members of the Association.

TELEPHONE PIONEERS OF AMERICA

INCOME AND EXPENSES

From January 1, 1916, to September 30, 1916.

Balance Jan. 3, 1916		$1,249.35
Income:		
Dues 1913	$ 8.00	
Dues 1914	44.00	
Dues 1915	302.00	
Dues 1916	2,160.00	
Dues 1917	6.00	
Dues 1918	2.00	
Fees	288.00	
Bond Interest	27.00	
Sale of Year Book	.50	2,837.50
		$4,086.85
Expenses:		
Salaries	$ 499.50	
Postage	199.42	
Stationery	404.39	
Year Book	987.96	
Incidental	15.40	2,106.67
	Balance	$1,980.18
Assets:		
Cash (Corn Exchange Bank)	$1,218.88	
Bonds (A. T. & T. Co.)	600.00	
Office Furniture	82.90	
Emblems	28.40	
R. H. Starrett, Advance a/c	50.00	$1,980.18

October 3, 1916.

G. D. MILNE, *Treasurer.*

VICE-PRESIDENT LOCKWOOD (presiding): Ladies and Gentlemen, we are very fortunate in having for our Treasurer the Treasurer of the American Telephone and Telegraph Company. I think, when Mr. Milne was first nominated for this position, it was thought that, if the American Telephone and Telegraph Company ever got into financial straits, it might draw upon the finances of this So-

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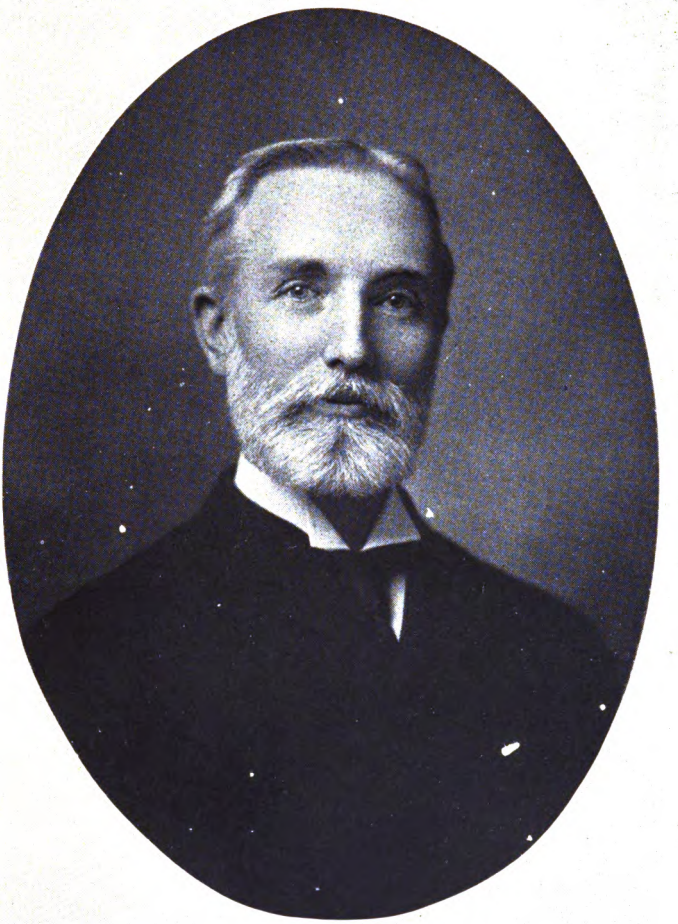

G. D. MILNE

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ciety. [Applause]. I have, however, some reason to believe that that contingency has never occurred yet, and so our money is perfectly safe. [Laughter].

You have heard the report. Your motion to accept and adopt is in order.

On motion, the report was duly accepted and adopted.

VICE-PRESIDENT LOCKWOOD (presiding): The next item is called "Miscellaneous Business." If any member has any new business to offer, or any suggestion, or motion, it is now in order, except to adjourn. [Laughter]. Have you any, Mr. Secretary?

SECRETARY STARRETT: I have nothing, Mr. Chairman.

MR. WINFIELD: Possibly it might be a good idea to have a life membership fee instead of an annual fee. A great many of us are busy, and liable to overlook paying these annual dues, and, if we could pay it all in a lump, the Secretary would not have to remind us of it. Further, some Pioneers will eventually get away from the telephone business—retire in a sort of a sense—and, if they were life members, there would be no temptation to withdraw. If you had put the sum of twenty-five to forty dollars, or whatever amount the Executive Committee saw fit to decide was a proper sum to produce the two dollars annually, that would still further add to the funds that might be available to the American Telephone and Telegraph Company, in case they got into trouble. [Laughter].

VICE-PRESIDENT LOCKWOOD (presiding): Would anybody else care to speak a word on that subject suggested by the member? In comment thereon I would say that the subject of life membership has been more or less canvassed by the Executive Committee, and I myself would be very glad indeed if some such thing could be done; but, if you all knew what an understanding Secretary we have, in addition to his many other good qualities, you would hesitate before propounding any new thing to him, or to us, because we have to put it up to him first, and then he puts it back, and tells us what we must do; but there is a good deal to that point.

The principal objection which has developed (and it has been canvassed quite a little) is this, that the majority of our membership can't spare more than two dollars a year. [Laughter]. Several of us might consent to sacrifice ourselves for the good of the Order, but, as I laid it on the Secretary before, I will give an instance. A gentleman who used to be in my office, now retired on a pension, felt that he couldn't continue even at two dollars a year, and a gentleman of his acquaintance, also in my office, volunteered to pay it for him for some years to come, but the Secretary returned the money and said he was not going to receive any money for more than a year to come.

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If the gentleman will make a formal resolution, we will be glad to have it, and then a motion to commit it to the Executive Committee for a year. We can't do anything about it at this time anyhow, because to change the Constitution and By-laws we have to have considerable notice. Would you care to prepare a resolution, and hand it in?

MR. WINFIELD: Yes, I'll do that.

VICE-PRESIDENT LOCKWOOD (presiding): Kindly do that before this meeting adjourns, and we will take it up.

Is there any further miscellaneous business, or suggestions?

MR. LELAND HUME: We must be here for some purpose, and it looks like you have about reached the end of your memoranda for the morning.

VICE-PRESIDENT LOCKWOOD (presiding): Not yet.

MR. LELAND HUME: It is beginning to look that way, and I am going to make a suggestion, if you get through too early, which I will hold in reserve to see if you will get anything going.

VICE-PRESIDENT LOCKWOOD (presiding): Go ahead now, if you wish.

MR. LELAND HUME: I want to make this suggestion, Dr. Lockwood. We have here representatives, as the Mayor so well said, and so kindly said, who have been actively engaged in the development of the telephone business for many years, twenty-one or more, and from all parts of this country and perhaps Canada. I was going to suggest that one representative, a ranking official if possible, present from each group, arise and say just a word or two, in order that the balance of us may sort of get acquainted. We haven't got Dr. Bell and Mr. Vail with us, and therefore we have got to sort of join in and make the thing go without them, and with your leadership we can do it.

I see over in the audience a young man who has done splendidly in the telephone business, and is the operating and head official of the largest group in the Bell family, Mr. Frank H. Bethell of New York, and I want to hear from him. [Applause].

VICE-PRESIDENT LOCKWOOD (presiding): When Mr. Hume began to talk about a young man, I couldn't think of anybody else but Mr. Thomas B. Doolittle.

In partial reply to Mr. Hume I will say that we shall certainly hear from Mr. F. H. Bethell this afternoon; and after we have finished this morning with the very unimportant duty of electing officers for the ensuing year, there will be a chance for anybody and everybody (beginning at the top and going down, or beginning at the bottom and going up, whichever way the audience likes) saying anything they have a mind to.

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SECRETARY STARRETT: Mr. J. Epps Brown, first Vice-President of the Southern Bell Telephone Company, has placed in my hands three invitations from local Clubs to the Pioneers to take advantage of open house, and with your permission I will read the letters. They are from the Atlanta Athletic Club, the Druid Hills Golf Club, and the Capital City Club, respectively, and are as follows:

THE ATLANTA ATHLETIC CLUB,
Atlanta, Ga., October 18, 1916.

Mr. J. Epps Brown, First Vice President,
Southern Bell Tel. & Tel. Co.,
Atlanta, Georgia.

DEAR MR. BROWN: Your letter of October 16th received.

It is with great pleasure that The Atlanta Athletic Club can extend to the Telephone Pioneers of America and their friends the use of The Atlanta Athletic Club during their convention in Atlanta October 27th and 28th.

Instructions have been issued to the manager of the Club to honor the Pioneers badge when worn by them upon entering the club, and to extend to them all the privileges and courtesies possible during their stay at the club.

Yours very truly,

ASA S. CANDLER, JR., *President.*

DRUID HILLS GOLF CLUB,
Atlanta, October 17, 1916.

Mr. J. Epps Brown, Vice Pres.,
Southern Bell Tel. Co.,
Atlanta, Ga.

DEAR MR. BROWN: I have yours of the 16th, and note with pleasure that the Telephone Pioneers of America will hold their annual convention in Atlanta on October 27th and 28th, 1916.

Replying to your request, beg to say that the Board of Governors grant with pleasure permission for the visiting Pioneers to enjoy the privileges of the Druid Hills Golf Club; the Pioneers badge being accepted as identification.

This privilege carries with it the use of the golf course without charge.

The Board sincerely trusts that these visitors will enjoy the Club during their stay in Atlanta.

Assuring you always of my highest personal regards, I am,

Yours very truly,

FRANK ADAIR, *Secretary.*

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CAPITAL CITY CLUB,
Atlanta, Ga., Oct. 18, 1916.

Mr. J. Epps Brown, First Vice President,
Southern Bell Telephone & Telegraph Co.,
Atlanta, Ga.

DEAR MR. BROWN: Your letter of Oct. 16th, to Mr. E. H. Inman, President of the Club, was submitted to the Governing Committee at its meeting last evening, and I take pleasure in advising you that the Committee in accordance with your request, extended the courtesies of our City and Country club houses to the Telephone Pioneers during their convention to be held on October 27th and 28th, and gave instructions that they be admitted on their convention badges. I am sending copy of this letter to the Superintendent of the Club, for his information.

Please let me know if I can be of assistance in any way towards making the convention a success, and I shall be glad to do whatever I can.

Yours very truly,

EDWARD R. AUSTIN, *Secretary.*

VICE-PRESIDENT LOCKWOOD (presiding): Is Mr. DuBois here?

MR. DUBOIS: Yes, sir.

VICE-PRESIDENT LOCKWOOD (presiding): I wish now to appoint a Nominating Committee for the nomination of Officers for the ensuing year. Mr. DuBois will please step forward. I appoint Mr. C. G. DuBois, Mr. T. B. Doolittle and Mr. M. H. Buehler.

While the Nominating Committee are deliberating, are there any announcements, or any other matter that you want to take up?

SECRETARY STARRETT: Mr. Chairman, Mr. Winfield submits his resolution, but I want to make some announcements first.

VICE-PRESIDENT LOCKWOOD (presiding): Before taking up this resolution the Secretary has one or two announcements he wishes to make.

SECRETARY STARRETT: Calling attention, particularly of the ladies, to the announcement on the program, cars will leave the Piedmont Hotel at 12:00 noon to-day.

This afternoon a session will be held in this room at 2:30, and it is desirable that all of the Pioneers and the visiting friends, who desire to come into the meeting, be present at as near that hour as possible.

The banquet will take place at 7:00 o'clock to-night in this hotel, the Piedmont, and the doors to the banquet hall will be thrown open promptly at 7:00 o'clock. It has been our custom in the past to sit down promptly at the hour set, and we are going to endeavor to carry that program out.

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For the benefit of the visiting Pioneers, who are traveling on the "Special," the original itinerary proposed that the train leave Atlanta at 2:00 o'clock Sunday morning, the sleepers being available any time after 10:00 o'clock Saturday night. This schedule was provided so that we could get over to Chattanooga early in the morning, and have as much time as possible at our disposal there. Since this itinerary was provided and approved by the railroad people, we have found that under the Georgia law they are not permitted to operate special trains on Sunday; therefore the announcement is on the program that the train will leave Sunday morning at 6:30. At 6:30 there is a regular train scheduled to leave Atlanta for Chattanooga via the Southern Railroad, and under the Georgia law we would be permitted to travel as a second section to that train.

The arrangements for the train, and sleeping accommodations on the train, will stand as originally provided. The sleepers will be ready at 10:00 o'clock Saturday night, and those who desire to retire at that time, may do so. The train will be taken shortly after midnight out into the yard and parked there, and then just as soon as we can get away Sunday morning, we will do it.

VICE-PRESIDENT LOCKWOOD (presiding): The same as it was last night!!!

SECRETARY STARRETT: The Chairman suggests "the same as it was last night." [Laughter]. The itinerary provides for breakfast at the hotel in Chattanooga. Of course, if we leave here at 6:30, it will be impossible for us to wait until we arrive at Chattanooga before having our breakfast. So the railroad people will provide sufficient dining car service to serve the breakfast en route, and will accept in payment for the meal the hotel coupon. I may say for the benefit of those who are not traveling on the "Pioneer" train, that each different function, as it occurs, requires a coupon to see you through.

That's all the announcements that I have, Mr. Chairman.

VICE-PRESIDENT LOCKWOOD (presiding): Now, is the Nominating Committee ready with its report?

SECRETARY STARRETT: Mr. Chairman, Mr. J. H. Winfield has submitted his resolution in reference to life membership in writing, and I will read it with your permission:

RESOLVED, That the Executive Committee be requested to take into consideration the advisability of a life membership fee; and, if such a step meets with their approval, to prepare the necessary amendments to the Constitution to be submitted at the next annual meeting for the approval of the Society.

It is moved by Mr. J. H. Winfield of Halifax, N. S.

This resolution was seconded and carried.

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VICE-PRESIDENT LOCKWOOD (presiding): We are very much obliged to Mr. Winfield for presenting his resolution in this way, and should I have the ill-luck to be re-elected to the Executive Committee, as I expect I shall be, will certainly take it into the most serious and careful consideration.

Are the Nominating Committee now ready?

MR. DuBOIS: Since the appointment of the Nominating Committee some ten minutes ago, we have carefully canvassed the entire membership of the Association, consisting of some fourteen hundred members, I believe, and have given careful consideration to those who are best entitled to serve the Association as its officers for the coming year. [Laughter]. We had a number of disputes on the subject, as you may have noticed in our meeting [Laughter], but finally with a get-together spirit we came to an agreement on the following nominations, which I now present:

For President (and I desire to say that we had no controversy as to this): Mr. Theo. N. Vail. [Applause].

For Vice-Presidents:

Mr. Thomas D. Lockwood
Mr. Edgar F. Sherwood
Mr. James T. Moran
Mr. Ben S. Read.

For Treasurer: Mr. George D. Milne.

For Members of Executive Committee:

Mr. Frank A. Pickernell
Mr. Richard T. McComas
Mr. Albert Lincoln Salt.

VICE-PRESIDENT LOCKWOOD (presiding): The Association owes a great debt to the Nominating Committee for the careful, exhaustive and painstaking way in which it has acquitted itself of this most onerous duty. Nevertheless, it is always the privilege of any member, disagreeing with the report of the Nominating Committee, to nominate any alternate that he or she wishes. For example, if it should be thought that any gentleman would prefer himself to Mr. Vail for the Presidency, it is now in order for him to mention his name. [Laughter.] There seems to be no response.

In accordance with the by-laws we have to elect these officers by ballot, but a motion that the Secretary deposit the ballot of the Association for the nominated officers is always in order. Of course, there can be no dissension about the election of Mr. Vail to the Presidency at any rate, whatsoever the qualifications or disqualifications of the others officers for their potential offices may be. Therefore, I will request the Secretary—I will venture to do this without a formal vote—

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to deposit the ballot of the Association in favor of Mr. Vail for the Presidency.

SECRETARY STARRETT: I deposit this ballot for President Theo. N. Vail. [Applause].

VICE-PRESIDENT LOCKWOOD (presiding): Of course, we want Mr. Vail as President just as long as we can get him. Now, you have heard the nominations of the others. I think we might elect the Vice-Presidents in bulk. [Applause]. With the exception perhaps of one of them, they don't come from Boston. You can tell a Boston man anywhere, but you can't tell him much!!! [Applause]. A motion, therefore, for the Secretary to cast the ballot of the Association for the four Vice-Presidents nominated is in order.

A motion was made and carried that the Secretary cast the ballot of the Association for the remaining officers nominated "in bulk"; with which the Secretary complied by depositing one ballot with the names of the officers nominated thereon.

VICE-PRESIDENT LOCKWOOD (presiding): The Chairman takes pleasure then in appointing two other members of the Executive Committee, namely,

Mr. James Robb, and

Mr. Charles H. Wilson.

It looks sometimes to me on these occasions as if we favored one district of the United States perhaps unduly, but we really cannot help that because the only way to get a quorum of the Executive Committee is to appoint enough of them near New York, which like the magnet of lodestone that Sinbad the Sailor used to talk about, draws everything to it.

We have now elected officers for the ensuing year. Is Mr. Leland Hume present?

MR. LELAND HUME: Yes, Doctor.

VICE-PRESIDENT LOCKWOOD (presiding): Would you like to add anything further with reference to talking for the good of the order by prominent officials and others?

MR. LELAND HUME: If you have a program this afternoon, that will cover that suggestion, I withdraw it.

VICE-PRESIDENT LOCKWOOD (presiding): It does not cover exactly that. We have a program of papers, and we have a very valuable paper from Mr. Bethell.

MR. LELAND HUME: Well, sir, my idea was this: that some of us are privileged to know a great many of the telephone people over the country, while some others of us are very busy in our own immediate City or group, and we do not know these people, except the more prominent and active officials only by reputation, and through the me-

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dium of our telephone journals and magazines. While a good many here know the gentleman whose name I called a while ago, everybody here knows him by reputation; and, I think, if someone representing each of the groups comprising the Bell system should arise and say just a word for that group, it would be interesting and of value.

Now you have elected four Vice-Presidents, men who deserve that honor richly, and, while I know one of those men almost as a brother, I expect there are a good many of you here who do not perhaps know him by sight; and, if you will allow me to do so, I am going to ask Operating Vice-President Ben S. Read, who has just been elected one of the Vice-Presidents, to rise and say just a word. [Applause].

MR. BEN S. READ: I think one provision of our Constitution was that we weren't to be punished by amateur speakers. I believe that's in the By-laws. If it is not, I am going to suggest a resolution next year that it be included.

I am very glad to be elected in the bunch of Vice-Presidents, and, of course, it is needless for me to say that I am glad to be here.

I thank you. [Applause.]

VICE-PRESIDENT LOCKWOOD (presiding): The Chairman would like to say that personally he is in very great sympathy with the proposition voiced by Mr. Hume, but a gentleman who is so versed in agricultural traditions as Mr. Hume knows better than I can tell him that while one man might lead a horse to water, forty couldn't make him drink!! It is unnecessary for me to say perhaps, that we have still about forty minutes. The ladies will have to leave us to get all ready for their expedition in five or six minutes more; but aside from that we have thirty to forty minutes left, and I am sure we will be glad to have anything offered, as they say in the Masonic or other Lodges "for the good of the Order."

MR. WARNER: I would like to suggest that some recognition be made of Illinois, especially some man from Chicago, as we have only two representatives here, myself and Mr. Cline. We would like to have some executive office in Chicago, if possible, to wake them up.

VICE-PRESIDENT LOCKWOOD (presiding): We can't elect him this year!!!

MR. WARNER: No, but he could be appointed.

VICE-PRESIDENT LOCKWOOD (presiding): We did have a Chicago Vice-President last year.

MR. WARNER: Yes, but somebody ought to take interest enough to enlighten the people there, so we can get them out. This is the second Convention I have attended, and there is a very small percentage from Chicago. At San Francisco we had seven; here we have two; we had about seven or eight at Richmond. What I wanted was some

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of the Committee to appoint some man in Chicago that would wake up the Chicago people.

MR. BLAKE: He didn't mention Mr. Barnwell.

MR. WARNER : He is from Dundee.

MR. BLAKE: Oh, you are speaking of Chicago!!

VICE-PRESIDENT LOCKWOOD (presiding): Chicago has never had the reputation of being a very sleepy City, and if Chicago cannot wake itself up, I don't believe the united efforts of this Association can do it. I suggest that the gentleman that made that suggestion should appoint himself corresponding Secretary of the Pioneers Association in Chicago.

Of course, Chicago is not like Philadelphia. I heard once of a Philadelphia gentleman who went to New York (quite a long journey) to visit a friend, and among other things that his host gave him to eat were some snails. He liked them so much and showed so much zest in eating them, that his host asked him "have you not any snails in Philadelphia?" "Oh, yes," he says, "we have, but we can't catch them!!!" [Laughter]. Chicago is not in that category at all.

A VOICE: Do you think that they can catch them in Chicago?

VICE-PRESIDENT LOCKWOOD (presiding): Yes, if they are there!!! [Applause].

MR. MUMPER: I have a resolution in my pocket, which I feel under obligations to submit. It is gotten up by another man. I would like to have it introduced, and then the Committee or the Association can act on it as they care to. It is in memory of Mr. Bell from Los Angeles, California. Many of you know Mr. R. B. Hoover, an old telephone gentleman. He is the one for whom I submit it.

SECRETARY STARRETT: This resolution that is submitted by Mr. Hoover has reference to the selection or the appointment of a Committee and the soliciting of funds for the purpose of providing a suitable monument for Mr. Bell. The purpose is to erect this monument during Mr. Bell's lifetime, and I understand from Mr. Hoover from some correspondence that I have had with him, that he was instrumental in a way in providing the monument that was erected to the late Mr. Morse of telegraphic fame.

So I move you, Mr. Chairman, that this paper be received and referred to the Executive Committee.

This motion was seconded and carried.

SECRETARY STARRETT: I move that we take a recess until 2:30 this afternoon.

This motion was seconded and carried.

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FRIDAY, OCTOBER 27, 1916
AFTERNOON SESSION

The afternoon session was called to order at 2:50 by Vice-President Lockwood.

VICE-PRESIDENT LOCKWOOD (presiding): Members of the Pioneers Society, Gentlemen: We are twenty-five minutes late in opening this session, but it is my fault, because I have been expurgating some papers, which are especially good, but they are a trifle long; and, as we have quite a number of equally good papers to read, I thought it expedient to make a little cutting, but everything that is in the papers will be in the record.

There is one difference between our Society and a Fire Department that I knew in Tennessee. The Fire Department did not have any fire alarm, and the members were about three miles apart. I was laid over at the junction there and asked the station agent if there was anything there whereby a man could amuse himself. "Well, there are two things: you can look over the fire department, or you can speak with a remarkably fine jockey, who is out at a livery stable near by." I asked, "How do you get word to the members of the fire department when there is a fire?" "We send them a postal card." [Laughter.] We can't do that here.

The first paper on our list is by our distinguished friend, Mr. L. B. McFarlane, President of the Bell Telephone Company of Canada. He has had an experience that not many of us have had. There are not many of us that have grown up to the Presidency of the Companies we were employed by. Mr. McFarlane and I were both telegraph operators in the early days, and there are very friendly feelings between us.

When I, as Chairman, had the privilege of appointing myself Chairman of the Committee on Papers, one of the first names that occurred to me was Mr. McFarlane's name, and I am sure you will all be very glad to hear from him.

MR. McFARLANE: Mr. Chairman, Fellow-Members, Ladies and Gentlemen: Mr. Lockwood said there is a very friendly feeling between him and myself. I take exceptions to that, because he came up to Canada and began to pump me about my experiences in the past; and then he went away telling me he wanted me to write that all out and express it to the members.

I thought of going to the war to get out of it, but I was too old. I tried other ways of getting out of it, but I had to succumb. He being the senior Vice-President, we have to do our duty. The subject I chose is "Telephone Pioneering in Canada."

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L. B. McFARLANE

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TELEPHONE PIONEERING IN CANADA.

No adequate record has been kept of the beginning of things telephonic in Canada, and I shall not attempt the task. But it may be that some reminiscences of the early days of development of the Art in Canada will be found worthy of place in our Society Journal.

The subject of this paper has been chosen because we, as Canadians, feel that we have an interest equal to Americans in telephonic history, the telephone having been first conceived in Brantford, Ont., where many of the early experiments were successfully carried out by the Inventor and where some of the first knotty problems were solved.

While Professor Graham Bell was still seeking a means of bringing his invention to perfection and rendering it commercially satisfactory, he gave to his father as a present a three-fourths interest in the Canadian patent yet to be granted—a rather unusual instance of filial regard and affection and one to be commended. When the patent was issued, a General Agent was appointed by Professor Melville Bell to control the Canadian field, and the business started as a private line enterprise.

The first telephone contract secured was taken at Hamilton, Ont., 18th of October, 1877, and the line, forming part of the local District Telegraph call system, was equipped with six telephones and first tested on the 29th of August, 1877. The Press of the day announced that this was the first instance in which more than two telephones had been operated satisfactorily on one circuit.

The opening of this line was attended by Professor Graham Bell, his father, Professor Melville Bell, and his uncle, Professor David Bell, all of whom expressed their delight on the successful operation of six telephones on one circuit, in the manner shown and described in the second United States Telephone Patent No. 186787, issued to Graham Bell January 30th, 1877.

The satisfactory talking qualities of this line immediately led to the opening at Hamilton of the first Exchange in Canada, and the second in the world, by the Hamilton District Telephone Company on its call box circuits. The license to operate was granted on the 28th of May, 1877, and the first line opened on the 18th of October, 1877.

About this date attempts were made to talk simultaneously on two circuits from Hamilton to Dundas, five miles distant. The cross-talk was very troublesome. Professor Bell being appealed to for help recommended that each insulator on the line should have a zinc thimble between it and the crossarm. This was tried, but no improvement was noticeable, and the cross-talk continued until metallic circuits were built.

The inducements offered to attract subscribers at that early date appear to us as highly absurd. A circular issued in February, 1879, at Hamilton requested subscribers to send orders or short messages to the operators to transmit to subscribers for whom they were intended. This was to be done whenever the subscriber did not particularly desire his line to be connected, but the Company stipulated in the circular that it could not guarantee correctness as its business consisted of putting subscribers in communication with each other. One can realize what a staff of operators would be required to-day under these conditions.

One of the first inducements offered the public at Hamilton was a Time Service to correct clocks at noon each day. At that hour a signal was sounded

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over the lines from central by means of a stick simultaneously pressing on and closing fifteen keys, one to each line. This service was soon abandoned as the lines outgrew the length of the stick.

The first Long Distance Line test in Canada took place in 1876 when Professor Graham Bell applied to the Dominion Telegraph Company for a permit to test his embryo telephone on its telegraph line between Paris and Brantford. When the formal application was received, the General Manager of the Telegraph Company handed his assistant the letter with the remark, "Another of those cranks; consign it to the waste-paper basket." But the assistant, scenting a source of profit, suggested that the line be rented for an hour, which was done. Needless to say the rental was never collected as the talking, though possible but one way at that time, was successfully carried out, and it led to the Dominion Telegraph Company acquiring a license to operate the Bell Telephone Patent in Canada for a period of five years from 18th February, 1879.

The first commercial Long Distance Line test in Canada was made on September 1st, 1877, a distance of 125 miles between Montreal and Brockville, but it was not successful, as the listeners on the line reported that the principal sounds heard were like the noise in a rivetting shop.

On the 20th of September, 1877, a successful conversation was carried on by Edison telephones between Montreal and Quebec, a distance of 200 miles. This was certainly a record talk for that period.

On the acquisition of the Bell patent by the Dominion Telegraph Company, its competitor, the Montreal Telegraph Company, acquired the Edison patent. Keen competition for exchange business immediately ensued, and as this attitude meant a fight to a finish, exchange telephone service in Canada could be had in the year 1879 almost for the asking.

The writer was appointed Superintendent of the Telephone Department of the Dominion Telegraph Company when the patents were acquired. Upon asking for instructions and information as to his duties he was told "to go and find out," that being all the lead they could give him. There was no one to go to who had a knowledge of the business, and he, therefore, had to grope in the dark. If the axiom holds good that 'knowledge is the basis of all intelligent effort' the pioneers of the telephone industry started with the greatest possible handicap, as the lack of information was appalling. No one then had any knowledge of the Art. The man who started the business could not teach those entering it as all alike were ignorant of even the first principles of its methods and operation. There was no literature on the subject to turn to, no electrical engineers to consult, practically no electrical manufacturers to build subsidiary apparatus and no skilled help to be had. With all of these drawbacks devices to operate had to be and were promptly provided, to get over what appeared to be at times insurmountable obstacles. Possibly one of the reasons why the telephone business has become almost the greatest in America is the fact that we have had to hew out a new road from the start, not depending upon any other industry, and much of the credit for success is due to the early pioneers who cleared the way.

As an instance of the obstacles one had to contend with I recall my first view of a telephone when Professor Melville Bell brought a number of wooden box telephones to Toronto. In addition he had other boxes containing vibrating reeds which made a rattling noise and were used for signalling

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purposes. The only electric signal arrangement known in those days was a signal type of bell and vibrating reed worked by a closed circuit battery. These were unreliable and had serious limitations. Professor Melville Bell's journey to Toronto was undertaken to get advice as to signalling apparatus from the telegraph men there, as, without good calling apparatus, the telephone could not be marketed with success.

When the Telegraph Companies entered the field, they decided that the best way to develop exchange business was to plant telephone systems in the various towns and cities regardless of cost or returns. A blanket order was given to cover as much territory in as many cities as possible before the other fellow. The fight was on. But a remarkable condition was found and one worthy of record. The successful talking of the commercial electrical telephone had caused some unscrupulous parties to enter the smaller towns and sell sound box or acoustic telephones, made out of or similar to a cigar box and connected together with piano wire. This third and troublesome competitor was found in numerous places with wires up and doing business. It was difficult in some cases to convince the public that these were frauds and it took time to displace them.

The competition between the Telegraph Companies was so keen that in canvassing, their representatives quoted rates hardly believable to-day. At St. John, N. B., one company abandoned the canvass for subscribers after two weeks vigorous work with only one subscriber secured. The other Company fearing defeat, announced its proposed opening of service on a free basis for three months, the telephones to be then removed if not satisfactory. But, alas, they could not secure telephonic apparatus in time, and the first Company, which had abandoned its canvass, learning of this move, sent by express a distance of 1000 miles a complete outfit to St. John, N. B., erected its exchange and gave the free service promised by its competitor. It is needless to say that no subscribers were lost when, later on, a rate schedule was put into effect.

At Ottawa, Ont., both the Telegraph Companies' representatives actively canvassed for exchange subscribers without success, but one Company was so confident that they shipped in ahead with the canvassers a complete exchange outfit. The canvass was a failure and the supplies had to be stored, until the public were in a more receptive frame of mind, or, in other words, until they saw other cities and towns had secured telephone service.

The first Bell Telephone Exchange in Montreal was opened in a room 12′ by 14′ floor area with a prospective list of 56 subscribers. The Manager went to New York to buy a switchboard. Tillotson's and Burnell's were the only electrical firms in business to whom he could apply. Tillotson had not manufactured any telephone apparatus, but claimed to have prepared a drawing of a suggested switchboard. The drawing when produced proved to be a rough pencil sketch on wrapping paper. After a query by the Manager as to the length of the proposed board, its dimensions were given supposedly in inches, but, on receipt of the switchboard, the length given proved to be in feet. The board when unpacked was found to be so long that a special building would have been required to house it. A way out was found by cutting the switchboard into three parts, one part bent around the room in circular form was placed in the Montreal exchange and the other thirds formed the first switchboards used at Quebec and Halifax.

Another difficulty which then beset us was that subscribers' station bells

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in quantities could not be bought ready made at the initiation of exchange service. An order for 500 vibrating bells was given to a Toronto electric company working in a small way on telegraph apparatus. These bells were distributed throughout the exchanges under construction, and although "vibrating" bells, when placed on subscribers' stations they failed to vibrate. Complaints came in a deluge from Managers. Tests showed that the ringer cores had been made of ordinary hard iron which permanently magnetized on passage of current causing the ringer to stick and the public to kick! The excuse offered by the would-be manufacturing electrician was that he thought the quality of iron in the ringers would make no difference, but it postponed the opening date of several exchanges.

These bells probably constituted the first "junk" pile, which has since been such a pronounced feature in telephone science.

The Bell Telephone Company of Canada entered the field in 1880 and operated in all the Provinces except British Columbia. That Company purchased the various competing interests, thereby consolidating the exchanges, but the opposition element would not be gainsaid and, in the early eighties, some isolated Bell exchanges were threatened with demoralizing competition.

Our honored President, Mr. T. N. Vail, had been a director of the Bell Company of Canada from its inception and his advice was sought. After studying the situation for a few minutes, he called for a map of the Provinces of Quebec and Ontario and with a blue pencil drew lines from Montreal to various Canadian cities and towns within a radius of 300 miles. The Manager, whose longest toll line barely exceeded 20 miles, gasped when Mr. Vail remarked, "Build Long Distance lines at once to connect all the exchanges within this territory." "But," objected the Manager, "they will not pay." To this Mr. Vail responded, "I did not say they would, but they will unify and save your business," and the early erection of such lines did consolidate our system to such an extent that competition has ever since been negligible.

In 1888 a representative of the Bell Telephone Company visited the ancient colony of Newfoundland and learned that neither Bell nor Blake had applied there for patents to protect their inventions. They apparently were under the impression that the Canadian Company's charter and rights governed in that territory, but, as this was not the case, patents were applied for by the Bell Company. Some idea of the prospective value of such a patent may be gleaned from the fact that the consideration paid Dr. Blake for his Newfoundland transmitter patents was one Russian sleigh of the best quality that could be manufactured in Canada.

The Bell Telephone Company's representative having secured patents in Newfoundland, applied to the local Government for a charter to operate, but met with keen opposition from the Anglo-American Telegraph Company which claimed exclusive rights under a fifty-year telegraph agreement. The local Government under pressure from the Anglo-American Company refused, after three months' delay, to grant the charter, although they had promised to do so. The position then was that the Bell Company held the patents and the Anglo-American Company the working charter. A deadlock seemed imminent, but the Bell Company's representative offered the use of the patents to the Anglo-American Company on a royalty basis, which was promptly accepted. When the Manager of the Anglo-American Company was asked why he had opposed the introduction of the Telephone, his explanation was unique. He said that from Press reports and a chance remark

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of the Bell Company's representative he had concluded that we had discovered a way to telephone across the ocean and he thought this was the secret reason for taking out patents in such an out-of-the-way colony. He had cabled his views and conclusions to the London office and was promptly ordered to oppose our application at all costs. When assured that he had jumped to a wrong conclusion and that telephonic transmission across the sea was impossible, he was quite satisfied to reach a working agreement.

One could go on reciting many instances of the trials and tribulations of the early pioneers, but enough has been said here to show that, through great and almost endless difficulties, we have laid a good and proper foundation for others to build upon.

VICE-PRESIDENT LOCKWOOD (presiding): I am sure I but express the sense of the meeting, when I say how much we appreciated the epitome of the history in Canada of the early telephone given us by Mr. McFarlane. No one else could have given it just in that way.

In this connection I would like to read the second section of Article I of the Constitution, which, I think, shows that this is one of the class of papers that we want.

"This Association is formed for promoting the traditions and memories touching the early history of the telephone system * * * etc., etc."

In that our Association has proved itself eminently successful thus far, and I certainly hope it will continue so.

Our next paper will be by Mr. F. H. Bethell [applause], First Vice-President of the New York Telephone Company, and President of more Companies than I care to count on my fingers to-day. I have had the privilege of looking over his paper, and I know it is of most vital interest, but I have forgotten its title. [Laughter].

MR. BETHELL: It hasn't any!!!

VICE-PRESIDENT LOCKWOOD (presiding): Well, then, it's all right!! [Laughter]. In this connection, however, I am reminded of a certain lecture bureau in a village I knew of at one time, in which a lecturer had been billed for about three weeks for a lecture on Keats, a poet. The only thing I remember about Keats is that he is the author of that quotation: "Distance lends enchantment to the view." The Chairman, who was billed to preside on that occasion, fell sick at the last minute, a habit which many Chairmen have, and he had to be replaced (although I do not see how you can replace anybody by displacing them) by a local farmer, who terminated his introductory remarks in this way: "And now, my friends, we shall soon all know what I personally have often wondered, what are Keats!!!" [Applause]. And we shall soon know now what Mr. Bethell's paper is about. [Applause].

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MR. BETHELL: Mr. Chairman, Ladies and Gentlemen: This reception is indeed flattering. It seems but yesterday that I presided at some of your meetings, and was looked upon by some as a steam-roller man, but I felt then, as I feel now, that a steam roller, if used properly, is a splendid piece of machinery. Mr. Lockwood, our worthy Chairman, has spoken of expurgating these papers, but he didn't subject my paper to that process. I let him have it; he made one or two comments on it, and then proceeded to forget its title altogether.

VICE-PRESIDENT LOCKWOOD (presiding): You said it didn't have any.

MR. BETHELL: That will be gathered from the text. In the Eastern group of Telephone Companies there are some nine operating companies, operating in the Eastern part of the United States, not including New England. The combined assets exceed three hundred million dollars. The Companies are adding to their assets every year somewhere about thirty millions, all tangible assets. There are on the payrolls of this group of Companies something in excess of 54,000 names. There are 54,000 people working in the ranks of the Eastern group of Bell Telephone Companies. In that group there is one Company in which I have taken a very peculiar interest, because it is the only Company that I ever had the honor of serving as its general manager. That Company is the Chesapeake & Potomac Telephone Company. The paper which I have and which is based on the suggestion made by the Chairman, Mr. Lockwood, that I take up some of the early experiences in Baltimore and Washington, is really, now that I have completed it, a brief outline of the history of the Chesapeake & Potomac Company.

I must, before I go into this paper, express here and now publicly my appreciation of the assistance given me by Mr. P. G. Burton, Manager of the Chesapeake & Potomac Telephone Company, for the wonderful work he has done in digging into the records and arranging the records for me.

The paper which I am about to present could not have been prepared but for the indefatigable efforts of Mr. Burton, a fellow Pioneer and Engineer of the Chesapeake and Potomac Company, in searching the early records and in arranging the matters therein found.

The Chesapeake and Potomac Telephone Company (the New York corporation) was incorporated under the laws of New York on the 30th day of June in the year of our Lord 1883. A year of sunshine and promise, for it gave to the business not only this fair Company, but it also gave us Eddie Corrigan who, then a boy of tender years and undeveloped strength,

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F. H. BETHELL

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is now Edward Corrigan, master of traffic problems and Superintendent of Traffic of all the C. & P.'s in the world.

Passing to events leading up to the incorporation of the infant C. & P. Company, we will consider, first, the District of Columbia, and, second, the State of Maryland. Mark the trail: it takes us not into Virginia or into West Virginia, though those great States are in C. & P. territory. The organization of the C. & P. is one; the policy of the C. & P. is one; the spirit of the C. & P. is one;—there is in the hearts of those of us—the chosen may I say—who wear its colors, but one C. & P. To make ourselves persona grata, however, in all the territory served by us—that is, to comply with State laws—we are legally and "accountantly" (if you will permit the word)—the latter because of the former—four separate entities, C. & P.'s of Virginia, of West Virginia, of Baltimore City (Maryland corporation) and of New York. Nobody, however, but the Secretaries and the Accountants know or care to know one C. & P. from the others.

At this point, consider the name. It is all embracing. We hear the waters of the Potomac come tumbling out of the mountains on our western front; we see the two branches of this historic river finding their way across the territory until they come together at a point on the West Virginia-Maryland line just east of Cumberland, Maryland, when they continue as one beautiful river to the Chesapeake Bay, the largest bay in the United States, the bay that penetrates our eastern front and gives to us, with the historic river that flows into it, our name.

———

It was in 1877 that Mr. George C. Maynard, fellow Pioneer and now Curator of the Smithsonian Institute at Washington, D. C., began to construct private telephone lines in the District of Columbia. At that time, Mr. Gardiner G. Hubbard was the Trustee of the patents of Doctor Bell, the inventor of the telephone. Maynard, the builder, became the agent for the Bell interests on September 22d, 1877, and on April 22d of the following year secured from Mr. Hubbard an exclusive license to use, and to lease to others for use, Bell telephones in the District of Columbia and in territory in Maryland immediately adjacent thereto. The telephone, though still an untried utility, was making its appeal, if not to the public then to the imagination of those builders of nations who took hold of it, and so during the following year, 1879, Mr. Maynard, acting with Mr. William H. Barnard, who had joined with him and who styled themselves the "National Telephonic Exchange" acquired the right to do a telephone exchange business in the District.

Mr. Maynard, during these years of the late seventies, was not devoting all of his time to the securing of grants and the organizing of co-partnerships, or to the development of his private line business. Early in 1878, he began experimenting with switching devices with the result that he soon announced that if fifty subscribers could be secured he would open an exchange in the City of Washington. Though the public at the outset received this proposition as something of a joke, the required number of subscribers was finally secured and in December, 1878, the Washington Central Office was opened. History does not tell us where the switchboard came from, but I am inclined to the opinion that the astute Maynard put it in stock before he circulated his petition for subscribers.

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There is now, in the closing month of the year 1878, a telephone exchange, with fifty progressive business men talking one with another, in satisfactory operation at the Nation's Capital. There was, however, much to be done in the way of educating people in the use of the telephone, as note the appearance in 1879 of a general notice running as follows:

"The word 'halloo' being very easily heard in the telephone, has come into general use to call attention, to ascertain if one is listening, etc.

SIGNALS ARE MADE IN THE FOLLOWING MANNER:

"On the bells with side switches, by simply lifting the hand telephone off from the switch. The telephone must always hang on the switch when not in use.

"On the bells with lower hook switches, by pressing the black button firmly once. The switch must be turned to the left while conversation is being held, and kept in a perpendicular position at all other times.

"On the bells with two buttons, by pressing the black button firmly once. The black button must be held down during the conversation.

"On magneto bells, by revolving the crank and making three taps on the button at the lower end of the box."

It apparently paid to advertise. Mr. Maynard in the same year (1879) got out a convincing circular in which we find the following:

"The Telephone, which a year ago was a great wonder, is now too well known to need description, and has become indispensable in all branches of business."

"Telephones are in constant use in the following offices, viz.:

"Columbia Institute for Deaf and Dumb.

"Government Hospital for the Insane.

"The U. S. Senate.

"District Reform School.

"Washington Asylum.

"The House of Representatives.

"Coroner's Office."

We will now, while depreciation begins and continues its relentless warfare, leave this first exchange for a while and again take up the thread that must lead us to the point in the development of the industry where, because of the broadening vision of those early pioneers, it was rushing to a union with other developments in the neighboring State of Maryland.

Maynard and Barnard, trading under the name "National Telephonic Exchange," soon disposed of their exchange business to the National Capital Telephone Company, and Mr. Barnard passed out. Mr. Maynard, however, retained his private line business and kept actively at work building such lines and, for use upon them, to lease instruments which he, under his original grants, had the right to do. This produced a situation that seriously interfered with a proper development of the industry and this situation continued until July, 1881, when the National Company bought from Maynard for cash, in amount fifty thousand dollars, his original license together with the lines that had been constructed under it.

It was in April, 1881, that Mr. Gardiner Hubbard, who had become President of the National Company—a joint stock Company—appointed a Committee to consider the advisability of incorporating under State law

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and to determine, if such incorporation seemed desirable, the State to which application for a charter should be made. In June of the same year, the Committee made its recommendations. They were immediately approved with the result that the Company was on June 14, 1881, duly incorporated under the laws of West Virginia and started business with a capital stock of two hundred thousand dollars. At the first meeting of the Board of Directors, held on the 7th day of July, there were elected:

President, Horace S. Cummings.

Vice-President and Secretary, John W. Thompson.

Treasurer, Henry D. Cooke.

There appears nothing of much moment in the history of this Company, except the purchase in July of the Maynard private lines and the abolishment on September 6th, 1881 (upon which day I celebrated my eleventh birthday), of the office of General Manager. Fortunately for me, some wise administration in later years re-established the office.

On July 30th, 1883, or some five years after the first telephones were installed in Washington, and about two years after its own incorporation, the National Capital Company disposed of all of its property, rights, franchises, etc., to The Chesapeake and Potomac Telephone Company, and passed on.

Troubles commenced practically with the opening of the exchange. It is recorded that as far back as 1880, and upon motion of Mr. Hubbard himself, there was ordered to be printed on all bills rendered under contracts that had become terminable, the following:

> "February 1st, 1880. Owing to the great increase in the number of calls made by many of our customers, our expenses have been larger than anticipated, and the service not always as prompt as it should have been. We shall hereafter keep an account of the daily connections made, and give better facilities to those doing the largest business and charge rental for these improved facilities in proportion to the use made by the subscribers of the Exchange."

Here, I believe, was the measured rate first attempted, but the public did not understand it and in consequence there came into existence at once a machine that quickly squelched the great principle that since that day has with public opinion behind it, endorsed by Commissions and approved by Courts, found its way into our Washington rate schedules,—the principle that spells common honesty, even justice—the Message Rate.

The machine that crushed to earth the struggling infant was a "Telephone Subscriber's Protective Association," organized in Washington in 1880 to protect its members from so-called "corporate greed," and its method was simple enough. At a mass meeting, it was agreed that each subscriber should on a given day insert the grounding plug into the lightning arrester (telephones were equipped with such things in those times) with the result that when that day arrived every telephone in Washington was put out of service. For two full weeks all telephones were quiet along the Potomac, when the management surrendered and service was, on the subscribers' own terms, resumed.

There were other troubles, for in 1882 comes a new President with a report in which he tells his stockholders that upon taking office and examining

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into things he had convinced himself that there had been carelessness and extravagance in the management, that the Company was burdened with useless employes, that it was unpopular in the community, heavily in debt, without funds properly to meet its operating expenses and seriously threatened by rival telephone interests.

This President, without delay, reduced the total force from 54 persons to 25 persons, which is enough, I think, to provoke shudders even among Pioneers, all of whom have ridden out at one time or another some pretty severe storms. While the President in separating names from payrolls paid close attention to the operating and construction forces, his best work was done in the business office, where he reduced the force from 17 to 4. That the business survived after that axe-swinger finished his job is pretty good proof that drastic action was necessary.

Pioneers will remember that the Western Union Telegraph Company was in the early days interested in telephones, and it was that Company, through its efforts to establish Edison telephone service in Washington that disturbed us there. Competition threatened again in the early nineties, but it, with its disastrous consequences, came to nothing possibly because there happened to be at the head of the Board of District Commissioners at that time a man of great common sense. The Honorable John W. Ross, President, Board of Commissioners, District of Columbia, in a letter to the Honorable James McMillan, Chairman, Senate Committee on the District of Columbia, dated January 4th, 1896, reported as follows:

> "The Commissioners of the District of Columbia, to whom was referred for examination and report Senate Bill 1140, 'To permit the Home Telephone Company, of Washington, District of Columbia, to install, maintain and operate a telephone and telegraph plant and exchange in the District of Columbia,' have the honor to report thereon as follows:
>
> *"The public convenience in the matter of telephone service requires that each owner or lessee of a telephone should be able, through a central office, to communicate with every other owner or lessee of a telephone in the District.*
>
> *"This indispensable condition of a perfect telephone service creates a monopoly by making it impracticable for but one telephone company to occupy the public streets.*
>
> "There is already one company in occupancy of the field, which is rendering a fairly good and efficient service, and the Commissioners do not think the public interests would be promoted by granting permission to another Company to tear up the streets and unnecessarily increase the number of wires thereon.
>
> *"If Congress deems it necessary to have a more extended and efficient service, or a more economical one, than the existing Company furnishes, the Commissioners believe that can better be accomplished by regulating the conditions under which that Company shall operate, than by chartering a new Company."*

Here was the first suggestion of regulation of public utilities of which I have knowledge.

Another unlooked for difficulty resulted from the fact hereinbefore

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mentioned that the license covering the right to construct private lines did not come to the Company with the right to do an exchange business. There developed with the continued independence of these private lines a switching arrangement through which were brought together express company and railroad company, railroad company and shipper, and so on until systems of importance came into existence, and then came, naturally, the demand for another destructive arrangement, the connection of privately owned equipment with the exchange system. This, to my mind the most hateful thing that might be put upon us, was properly disposed of—and so I pause to claim for Washington the distinction of being first:

In the establishment of the Message Rate System.

In meeting and turning back proposed duplication.

In suggesting regulation by Government of Public Utilities.

In refusing to connect privately owned apparatus with our system.

In settling (amicably) disputes with Subscribers' Protective Associations.

In the establishment of Retrenchment Policies.

———

The first telephones were brought to Baltimore by Mr. Augustus G. Davis and Mr. John Henry C. Watts, who in 1878 took out a Bell license covering the right to do a telephone business in and about Baltimore City. There was some early hustling in this Maryland development as, observe, the original license was dated March 29th, it was superseded by a new and broader one on April 25th, a company known as the Maryland Telephone Company of Baltimore City was incorporated on August 19th, which corporation on September 7th (all in the year 1878) filed notice that it had issued to Messrs. Watts and Davis four thousand nine hundred and ninety shares of the capital stock of the Company for 82 miles, more or less, of No. 8, 9, 10, 11 and 12 wire, with insulators, instruments, franchises, etc., to go with it; and on January 1st, 1879, the first telephone exchange was established in the City of Baltimore. The business in 1882 passed into the possession of the Telephone Exchange Company, a West Virginia corporation, and in July, 1883, to The Chesapeake and Potomac Telephone Company, which Company had just been incorporated under the laws of New York to take over the business, the incorporators being Mr. Morris F. Tyler and Mr. H. P. Frost of New Haven, Connecticut; Mr. H. B. Lytle of Boston, Mr. Henry D. Cooke of Washington, and Mr. Augustus G. Davis of Baltimore.

———

The capital stock of this Company was on July 13th, 1883, fixed at two million six hundred and fifty thousand dollars, and on August 1st of that year it, with the proceeds of the sale of this stock, purchased the assets of the National Capital Telephone Company and of the Telephone Exchange Company, thus acquiring the exclusive right to conduct a telephone business in the District of Columbia and in the State of Maryland, and in September of that year the Company found itself swamped with business. It became necessary to refuse new business both in Baltimore and Washington, because existing switchboards were full and promised new boards had not been delivered. The new boards were installed early in 1884, but the desire to get them in service at the earliest possible moment lead to cutovers without proper tests and in Washington to an all but complete demoralization of the service.

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The new Company at once caught the spirit of its forerunners, which meant that it stood in the foreground in the real pioneer work of blazing out new and untried trails. In the year of its incorporation, it entered into an agreement with the Commissioners of the District of Columbia under which one mile of underground conduit was to be laid in the District within one year.

That the management proceeded with all diligence to meet its contractual obligations is evidenced by the fact that it was reported to the Board of Directors under date of March 31st, 1885 (the year in which the first telephone directory in pamphlet form appeared in Baltimore and Washington) that 12,849 feet of underground conduit was at that time in service. On May 21st, 1885, Mr. I. M. Bryan, then General Manager, reported that there was in service in Washington 1000 miles of underground conductor which was three-fifths of all the underground telephone construction in the United States. But the conduit then laid did not continue long in service.

These early conduits were nothing but wooden troughs in which were laid rubber covered lead incased cables over which hot tar was poured to the capacity of the trough. Archeologists, who have blasted their way into the troughs, report that except for some early difficulties with the tar, hereinafter referred to, there are no signs of depreciation from ordinary wear and tear. They apparently have taken their places with the rocks in the hills that give way to nothing other than eruptions such as are produced by earthquakes or well-placed dynamite. Yet, as telephone plant, they long ago passed out.

Curiously enough, our archeological friends find in this early construction strong evidence that its builders had some notion of a distribution system, for on top of the lead cables are found porcelain diaphrams containing some sixty holes through which insulated wires were strung. It is believed, however, that this plan was never carried out.

This construction was placed under the sidewalks where, to the horror of pedestrians, ignorant as to what enterprise and energy were doing in developing a new utility—at that time a novelty—it, as the hot days of a Washington summer approached, came out to see the world. It formed itself in little puddles of tar in the uneven sidewalks. So determined, too, it seemed to be to get back to headquarters that it was necessary to place a barrel for its reception at the central office end of the line. Into this barrel cheerfully flowed the tar that should have continued on the job assigned to it.

In those days the location of the vaults of a casual safe deposit company was of greater importance than uninterrupted telephone service. As late as 1888, such a company, having first secured a permit from the District authorities, proceeded to build its vaults under a sidewalk and when it ran foul of our tar-imbedded cables, it didn't even hesitate. It cleaned them out and in so doing rendered useless just about half the telephones in the city.

The matter was taken to the courts where the decision favored the safe deposit company. In this, as in many other cases, good came out of evil, for the Congress in 1890 adopted a Resolution which brought into existence a committee of three to consider in its broadest sense the question of placing all wires in the District of Columbia in underground conduits. The committee in its report urged that all wires go underground, but recommended, unfortunately, the construction by the Government of an underground system

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of conduits to be made available for all wire-using companies. Unfortunate it was, not because it resulted in the construction of such a system, for it did not so result—that, indeed, would have been a calamity. It was unfortunate because during the pendency of the question the Company was absolutely estopped from adding to its underground plant and additions to its aerial construction were so restricted by the authorities as to amount practically to estoppage and this, almost unbelievable, condition continued because of Government inaction for more than ten years, or until June, 1902.

The Company, being tied hand and foot, telephone development was arrested and in consequence the Nation's Capital stood still while other American cities went rapidly forward in embracing the advantages which the ever increasing use of the telephone brought to them.

On the 20th day of June, 1902, or no longer ago than the Presidential term for which McKinley was elected, Congress passed an Act which put new life into the Company—an enabling Act which took the fetters off, thus permitting the unrestricted building of property and extension of service. But there was another difficulty—a difficulty brought about not by Congressional inaction but by Congressional action—an ill advised law with respect to rates had been enacted, resulting, of necessity, in litigation. Long drawn out legal battles had to be brought to a close before capital could be induced or even invited to come to Washington.

The Act that caused all this trouble, expense, and delay, was approved June 30th, 1898. Without inquiry of any kind, the Congress, with that supernatural wisdom with which legislative bodies sometimes think themselves endowed, by statute fixed the maximum rates that should be charged for telephone service in the District of Columbia. The Congress, knowing nothing of the subject and naturally caring for no result other than the passing commendation of an uninformed public—a public taking it for granted that the Congress informed itself before it took action—made the rates so low that the Company could not, if it accepted them, do business at a profit, which meant, of course, that the Company could not do business at all. And so the Company, very properly, took the position that the Act was unconstitutional because it was confiscatory.

This brought the lawsuit known in the annals of the C. & P. as the "Manning Case," the final settlement of which reflected great credit upon the officers of the Telephone Company, upon the lawyers for the other side, especially upon that great lawyer and broad-minded, public-spirited citizen, Mr. A. A. Birney, who but recently died at Washington, and, finally, upon the Congress itself which, with the facts developed in the courts before it, repealed the impossible law.

So with the enabling Act of June 20th, 1902, and now the Repealer Act of April 24th, 1904, our Company, freed for the first time in twenty-four years, started with a rush upon a career that must command, I respectfully submit, the admiration of all of you.

But a word about the Manning Case. It came to trial in the Supreme Court of the District of Columbia, where the Court held the Act to be unconstitutional for the simple but very excellent reason given, which was, in the Court's own language, "The Act is unconstitutional by reason of the fact that the rates fixed thereby are unreasonably low for the service and supplies to which it must be considered they refer."

Incidentally, the learned Judge, in his decision, discussed, just as a com-

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mercial engineer might in these days discuss the future of the telephone in Washington. He made a careful survey of the situation, with the result that he gave it as his opinion that there might be some day four thousand telephones in use in the District of Columbia.

The case was appealed, and from the Court of Appeals there came, in reversal of the opinion of the lower court, the following comforting and reassuring words to the confiding people who had given their time and their money to the development of a telephone service in Washington:

> "Being a foreign corporation doing business in the District of Columbia upon suffrance—a mere occupant at will, without the protection of contract or vested right—the defendant, the Telephone Company, could be either expelled or permitted to remain upon any conditions whatever at the will and pleasure of Congress. * * * The substantial effect of the Act is to impose the statutory rate as a condition of further toleration."

The Supreme Court of the United States, to which appeal was taken, could not stand for any such reasoning as the Court of Appeals had worked into its decision, and so it not only reversed the lower court but sent the whole question back to the court in which the litigation had started some six years before, that it might get a fresh start for untold additional years of litigation. Common sense prevailed, however, and as has been pointed out, the matter was settled to the satisfaction of everybody and the management turned its attention to the serious consideration of the many and complex questions of telephone development.

The problems in Baltimore arising in those early days were not the Washington problems, but they were of equal importance—they had to do with the very life of the business, and they, of course, received the most careful consideration. The President and General Manager, in a letter to Boston written in the early days, after telling of conditions in Washington, continues as follows:

> "Added to this is the Baltimore situation, which is not exactly to my liking, and which requires a good deal of shaping up. You will observe from this general condition of affairs here and in Baltimore that the picnic period for the Pooh Bah of this Company has not yet dawned."

Baltimore problems were made to look easy at times because of the Company's great good fortune in having at the head of its Legal Department one of the great lawyers of all times. The late Mr. Bernard Carter was, and I say it without qualification, the greatest man I ever knew. He was the master, commanding the respect and admiration of all, who steered us safely through many a treacherous storm.

But before proceeding with our review of Baltimore, I am going to ask Pioneers to turn back for a moment to the days before the Engineering Department of the A. T. & T. Company became the great clearing house for the Bell System. I find it difficult to believe that there ever was a time when that great Department was not engaged in research work of the most important kind; when it was not investigating and reporting on the merits of the many devices that are offered; when it was not keeping the Companies informed as to what should go into the works and as to what should be done to keep our sails and our hulls clean.

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But here we find the C. & P., and I suppose Companies everywhere, experimenting with "induction killers," "resistance reductors," "anti-hummers," "battery rejuvenators," "resonators," and so on. Such a situation, had it not been long ago corrected, would have destroyed us.

It was in 1886, or seven years after the opening of the first exchange in Baltimore, that the management decided that house tops would not always endure as suitable places for wire attachment. Linemen were tempted altogether too frequently to refresh themselves on hot days by bathing in the water tanks also located on the roofs; housewives viewed with dismay the tracks left by Company employes in finding their way from street door to the top of the house. The ordinary roof will sooner or later begin to leak, and it was early discovered by frugal property owners that such leaks were invariably caused by housetop fixtures, or by Company employes engaged in their maintenance. Something had to be done about it, and something, too, had to be done about the ever increasing number of wires strung on poles along the city streets.

And so the Company made application to the City Council for a franchise covering the right to construct subways under the city streets. The city authorities, though constant in their condemnation of existing conditions, were very deliberate in granting to the Company the power to do the only thing possible to relieve the situation—the power to place its wires underground. It was in May, 1889, that the necessary ordinance was finally approved.

Three years had gone by since the underground construction had, by the Company, been determined upon and now with its plans all prepared it went immediately to work with the result that before the end of the year in which it received its grant over three miles of conduit had been constructed. This construction was of terra-cotta clay conduit.

The discussion leading up to its adoption fills many pages of the early records, there being many at the time who held out for the solid type that had been used in Washington.

The Company's plans for a permanent betterment of conditions did not stop at underground construction. They included a new Company-owned fireproof building. Work on this building was commenced in 1886, and rapidly pushed to completion. It was occupied by the Company continuously until it was destroyed in the great fire of 1904.

The blows that all but destroyed the Company in Baltimore fell upon it in the early nineties. In March, 1892, the Legislature of Maryland passed an Act enabling the City of Baltimore to construct, maintain, and operate a conduit system.

In April of the same year, the same Legislature enacted a law fixing maximum rates for exchange service in Baltimore and for toll rates throughout the State. An attempt was made in the law to define a telephone, and as grounded circuits were still in general use, the description seemed not to apply when a year later metallic circuits were introduced. A Legislature can in a few minutes make a law, but it takes years, sometimes, to eliminate the hardships that hasty and ill-advised legislation bring upon us.

This Legislature, in a futile attempt to keep abreast with the development in the art of telephony sought in 1894 to clear up the uncertainties arising out of its Act of two years before by passing an Act requiring the Company to file in the office of the Clerk of the Court of Appeals an adequate

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description of a telephone. This Act permitted the making of an extra charge for metallic circuit service, and as it continued on the statute books until repealed by the Public Service Commission Law, which law was enacted in 1910, the Company seemed obligated to furnish and did furnish in the great City of Baltimore to all who applied for it, grounded circuit service for many years after such *service* had been abandoned in communities where the Companies were free to develop the industry along proper lines.

The enabling Act under which Baltimore was to become the proud owner of a conduit system (it had no sewer system, at the time) was not an enabling Act at all because the Legislature neglected to provide a plan for financing the undertaking. Four years later, or in 1896, this was corrected by the passage of an Act authorizing the City to issue and sell its corporate stock sufficient in amount to provide the funds necessary to complete the system as it was then planned.

Though the Subway Act of 1892 provided in terms that it should not in any way modify the franchise which the City had granted to the Company in 1889, an attempt was made to take that grant away from us, and to compel us to become unwilling and unhappy tenants in the municipal system.

The City had started the construction of its system in 1898 and as our Company went right along exercising its rights under its franchise, the Mayor and Council on the anniversary of the battle of Bunker Hill,—April 19, 1899, passed an ordinance repealing our franchise, leaving us presumably with no road open but that provided by the City. This action brought the Company into Court where the question to be determined was of far-reaching importance.

The case was won, with the result that there is today in Baltimore City a Company-owned subway system that compares favorably with any subway system anywhere. As Wolfville's "Old Cattleman" would have expressed it, there was much breeding of events in those early nineties.

With hostility engendered in the minds of the people by reason of the Company's desperate and finally successful efforts to free itself from the severe and unwarranted burdens put upon it by State and City, it was not difficult for the promoters of duplicate systems to find encouragement in Baltimore.

First came the Writing Telegraph Company, which, after two or three years of existence—on paper—changed its name in July, 1895, to the Home Telephone and Telegraph Company of Baltimore City and started its canvass for subscribers. This Company secured a permit from the City, which permitted it for a period of ten years from July 1, 1896, or until the City subways might be made ready for occupancy, to use ducts which had been provided for use in connection with the Police and Fire Alarm Telegraph System.

The ordinance under which the Home Company was permitted to do business provided, and the provision was accepted by the public spirited, city loving promoters of the enterprise, that the rates for business service should not exceed $4.00 per month and that any resident of the City should have service in his home for $3.00 per month.

Just six months before this contract was entered into, or in January, 1896, a Committee of the Legislature appointed to investigate the affairs of the Company then in the field had reported that, "In their judgment, the charges now made by The Chesapeake and Potomac Telephone Company for telephone service in the City of Baltimore are as low as can be reasonably asked for by

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subscribers, and that the rates cannot be reduced without doing an injustice to the Company, nor without impairment of the service."

The findings of the Committee had no effect on the situation at all. The promoters, it was assumed, knew what they were doing when they accepted the rate provisions incorporated in their franchise; and they did. It was but a very short time before they had that franchise in the courts where they contended that its rate provisions were unreasonable and prayed for relief in the form of higher rates. The Company, so it was contended, could not continue in business unless the relief prayed for was granted.

The relief was granted—the judgment of the Legislative Committee, incidentally, endorsed—the judgment of the promoters was found to have been bad—but nevertheless, the City had become burdened with a dual service. The two Companies struggled along—neither of them prospering for more than ten years when a sale was made in 1907 that brought about a single ownership, but never a merger, of the physical properties. When the Bell became the owner of the Maryland Company, as it had come to be known, that Company had in service some nine thousand stations, and although by reason of better maintenance and better traffic methods the service was improved the business began to disappear the minute it became known that the ownership had passed to the Bell. Disconnection orders poured in at a surprising rate. There was no complaint of service; there was no complaint of rates; it had ceased to be competition; it was merely duplication and duplication is wasteful.

The Company died a peaceful, natural death, with the result that our own C. & P. with lower rates than were ever possible in the days of duplication is a robust institution serving its public well, treating its employes with liberality, and returning something to its stockholders.

Our Company has the distinction of being the first to put into service a loaded submarine cable. This, a 16-pair, 13-gauge cable, was laid in the Chesapeake Bay on May 20, 1910. It connected Baltimore with the famous "Eastern Sho" and made it possible to abandon an exceedingly unsatisfactory land line that found its way north to the head of the Bay and then south again into the peninsular and on down to Cape Charles.

———

This history, tedious at times, no doubt, will close with a brief description of the most dramatic incident of the Company's career. On Sunday, February 7, 1904, there started in the business section of Baltimore a fire that seemed not in its early stages to be very serious, but which finally passed beyond the control of the firemen and swept block after block of the City's business buildings out of existence. It came to the exchange building of our Company, sending out in front burning brands that lodged on roof and window sills near which sat the young women of the operating forces bravely putting up the connections frantically demanded by the stricken people. These women, facing the front, knew that the City around them was burning; they knew that the building in which they were housed, that the switchboard at which they worked, that the chairs upon which they sat, would soon be consumed, but they also knew that before the fire came so near as to prevent escape they would go in safety to the streets far below them.

When it seemed no longer safe to permit these brave women to go on with their work, the order was given and they calmly left their positions and with a backward look at the old familiar surroundings marched

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quietly out of the building. The fire came, and the building with its contents were destroyed.

All honor to them, and all honor, too, to the men who were with us in Baltimore at that time. While the fire swept relentlessly on, plans were developed for the immediate restoration of service.

There came hurrying to Baltimore to assist in the fight being made to save the City, ten companies of fire-fighters from New York City and on the day of their arrival there reached Baltimore the first shipment of telephone material necessary to the restoration of our service.

With the resources of the great Bell System at our disposal, men and material were poured into Baltimore with the result that service was completely restored before the end of the month and before the last sparks of the fire had died away.

History, indeed, was in the making; to chronicle at this time all that happened is impossible, but one thing I must set down and that is the fact that a complete central office equipment was installed within twelve days. It was installed in a building located just to the south of the burned area.

Baltimore was quickly rebuilt, our Company in the rebuilding contributing a modern fire-proof building.

There are today in Baltimore some 64,000 telephones.

There are in Washington some 57,000 telephones.

There has been an increase in the two cities during the past decade, or thereabouts, of 850%.

The gain in stations in Maryland outside of Baltimore during the same period stands at 2800% and the stations now in service at 43,000.

From 14,000 to 164,000 stations is the record made by the old C. & P. since it was lifted from the shoals and sent sailing on its way.

VICE-PRESIDENT LOCKWOOD (presiding): The applause which has been given to Mr. Bethell and his address assures me that the incidents and reminiscences he has described have struck a parallel line with the experiences of many of us. For myself I can say that I have been intensely interested all through, and I feel that I know more about the telephone history of Baltimore and Washington than I thought it was possible I could know. If I might express my own feelings very graphically, I might almost paraphrase the anecdote of the time when Wendell Phillips died. Someone asked E. R. Hoar if he was going to the funeral, and he said, "No, but I intensely approve of it." [Applause]. Surely everyone here, whether they have been denizens of Baltimore or Washington, or employed by any of the Chesapeake & Potomac Telephone Companies, must have been very much delighted by hearing the story embodied in this paper.

All of us know something about the multiple switch board. Perhaps, all of us do not know all about it. Perhaps, not a single one of us knows all about it. The man who does know all about it is not with us to-day, Mr. Charles E. Scribner, but he has been so good as to

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write about it, and it will be almost, if not quite, as interesting as a personal paper.

I remember a time when a man was walking along the street and he saw flames breaking out of the second story window of a residence. He felt it his duty to call the attention of the residents to it, and a lady came to the door who happened to be deaf. He said, "Madam, your house is on fire." "What did you say?" "I say your house is on fire; the flames are breaking out of the second story window." "I didn't understand you; what did you say?" "I say your house is on fire; it will soon be burned down; you had better escape." "Oh," she says, "is that all?" "Yes, ma'am, I believe that's all I can think of just now." [Laughter and applause]. That really is about all the preface I have to make of Mr. Scribner's paper except that Mr. Weisiger, who has been our guide, philosopher, and friend ever since we have been here, and who, perhaps as we now know, is always successful in anything he undertakes, in the absence of Mr. Scribner has consented to read the paper for us.

Before asking Mr. Weisiger to read the paper, Mr. C. H. Wilson, General Manager of the American Telephone and Telegraph Company, has a brief announcement to make.

MR. C. H. WILSON:—On behalf of the American Telephone and Telegraph Company, and the Southern Bell Telephone and Telegraph Company, I desire to announce that the Pioneers are at liberty to use the toll lines and the long distance lines while they are here, as far as it may be done legally; that is to say, all who are employees of the telephone or telegraph Companies, or railroad Companies, or any Company under the control of the Interstate Commerce Commission, may use our lines. Any Pioneers who are not so related to the Companies under the Interstate Commerce Commission, may use them, but not free. We would like to extend the privilege to all, but, as you all probably know, we are restricted by the Interstate Commerce law. We hope you will use the lines to your homes and elsewhere before 9:00 o'clock in the morning on each day, and after 4:00 o'clock in the afternoon. I thank you very much. [Applause].

MR. KENDALL WEISIGER: Mr. Chairman, Ladies and Gentlemen:—The subject of Mr. Scribner's paper is "The Genesis of the Multiple Telephone Switch-Board."

THE GENESIS OF THE TELEPHONE MULTIPLE SWITCHBOARD

The telephone was placed on the market in 1877, commercial telephone exchange service established January 28, 1878, and the first multiple switchboard installed in January, 1879, in the "Edison" telephone exchange of the American District Telegraph Company, at 118 La Salle Street, Chicago.

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Back of these developments there are many stories of inventions and achievements which, at the time and under the circumstances and the state of the electrical art then existing were, and now are, justly considered marvelous. It is instructive to look back from the present time, and with our advanced practical and scientific training, observe with what swiftness and directness the problems as they presented themselves were worked out and how logical were the steps taken to meet requirements.

That Alexander Graham Bell was alive to the possibilities of telephone exchange systems of intercommunication was made evident in his letter of March 25, 1878, to capitalists, in which he declared;

"It is conceivable that cables of telephone wires could be laid underground, or suspended overhead, communicating by branch wires with private dwellings, country houses, shops, manufacturers, etc., etc., uniting them through the main cable with a central office where the wire could be connected as desired, establishing direct communication between any two places in the city. Such a plan as this though impracticable at the present moment, will, I firmly believe, be the outcome of the introduction of the telephone to the public. Not only so, but I believe in the future wires will unite the head offices of the Telephone Company in different cities, and a man in one part of the country may communicate by word of mouth with another in a different place."

This development began immediately, progressed with amazing rapidity, and is still going on.

A short review of the early conditions will serve to bring clearly before us the situation which demanded the multiple switchboard.

Before the telephone, there were numerous undertakings in the way of electrical communication, all telegraphic. Electric telegraph systems for the dispatching of messages, with switchboards adapted to make the necessary connections of the telegraph lines; private telegraph lines radiating from some of these telegraph switchboards to the offices of concerns having extensive telegraph business with agents or correspondents, in which they employed their own telegraph instruments and operators; "Ticker" systems, whereby stock quotations were delivered to brokers' offices by printing telegraph instruments, and burglar alarm, fire alarm and district messenger systems, were in successful use. The American District Telegraph Company, established in Brooklyn in 1870, was flourishing in various cities. Its call boxes were on circuits radiating from central offices, and looped in series through the call boxes of many subscribers. These boxes were equipped to call "messenger," "carriage," "express wagon," "doctor," "fire," and "police," the calls being recorded on Morse registers at the District Offices.

There were also telegraph men who recognized the need of direct momentary intercommunication between business houses. At Philadelphia, in 1867, Henry Bentley established a telegraph exchange with a telegraph switchboard at a central office and wires radiating to telegraph instruments in the offices of bankers and brokers. Most of the messages were dispatched to the Central Office and redispatched from there, but direct connections were occasionally made. About 50 subscribers to this service had been secured by 1877.

In 1869 the Gold and Stock Telegraph Company established a similar exchange at New York for banks, and secured about 25 subscribers.

In 1874 William A. Childs established the Law Telegraph Company at New York, to furnish telegraph exchange service to lawyers. A number

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C. E. SCRIBNER

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desired by a calling subscriber was signalled by taps on the bell which corresponded with his line number at the Central Office, whereupon the two numbers were connected by an operator, and disconnected when signalled by taps to take down the connection.

The Law Telegraph Exchange was the nearest approach to satisfactory interconnecting which was offered by telegraph service, but the apparatus was crude and slow. Up to the advent of the telephone this largest of the telegraph exchanges had but 120 subscribers and was limited in use to telegraph operators, and the delivery of communications by "Morse code" (dots and dashes), by "Dial" telegraph receivers in which each message was taken by an observer as the moving needle on the dial pointed out the letters spelling the words of the message, and by "printing telegraph" instruments which actually printed the messages.

In none of the telegraph undertakings had there appeared a sufficient demand for instant and constantly changing interconnections between lines on a large scale to be taken seriously.

When, in the Summer of 1877, the telephone was introduced it made its entrance at the opportune moment to meet a real need, and it received an embarrassingly enthusiastic reception. Through the medium of telephone exchange service the interests of commerce and civilization were revolutionized and advanced, social intercourse broadened and quickened, and the telephone assumed intimate relations with the private life of people the world-over.

The importance of the telephone as a competitor was quickly recognized by the telegraph interests. Competition with the Bell companies was soon established and telegraph exchange development ceased. However, the long distance telegraph service, call box, and ticker services have been continued on their merits and have increased beyond all early expectations.

The Western Electric Manufacturing Company, previously skilled and equipped for the manufacture of telegraph and other electrical instruments, was called upon in 1877, by the Western Union Company to manufacture its telephone apparatus, continued after the Western Union-Bell settlement in 1879 to sell switchboards to the Bell telephone licensees, and later became the sole manufacturer of all the telephone apparatus for the entire Bell system. The Western Electric Company and its predecessor, the Western Electric Manufacturing Company, has at all times been the largest manufacturer of telephone apparatus in the world.

I entered the employ of the Gold and Stock Telegraph Company in November, 1876, and was engaged by the Western Electric Manufacturing Company in January, 1877, at the age of 18, as an electrician in connection with the design of telegraph instruments. Upon taking up the manufacture of telephone apparatus, the Company assigned engineering work in connection with such apparatus to me. I grew up with the Company and had first hand knowledge of its activities and those of its customers in the telegraph and telephone fields.

Things moved swiftly in those days, for the telephone industry had not been more than fairly launched than subscribers increased so rapidly and calls for connections came into the exchanges so fast that all telegraph switching facilities, which were naturally first used, proved inadequate, improvised modifications were almost useless and new contrivances of only temporary benefit. In giving testimony in a law suit, in 1896, I said,

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"The value of the telephone exchange came to be appreciated by the public very soon and the growth of the telephone exchange gave to its promoters surprise following surprise. A switchboard designed and well calculated to provide for the estimated growth of years would be found of too small capacity for the needs of the time when completed, the growth of the business between the date of the order and that of completion being sufficiently great for this result. The single operator of the early exchange was first given an assistant, other operators and assistants were added, and a difficult problem soon presented itself to the pioneers of telephony."

The solution of this problem was the Telephone Multiple Switchboard. I have selected it as the subject of this paper as I personally had much to do with the work, saw the early apparatus constructed and installed, and witnessed its successful operation.

The first commercial telephone exchange was in New Haven, Connecticut, in January, 1878. In the same year the "Edison" exchange of the American District Telegraph Company was established in Chicago.

It was known as the "Edison" Exchange because it was equipped with the Edison transmitters, on which the Western Union Company owned patents. This exchange was destined to be the birthplace of the facilities which, next to the invention of the telephone itself, have made possible the large exchanges and the extensive use of intercommunicating service which are now maintained.

The "Edison" telephone exchange was established by the American District Telegraph Company at 118 La Salle Street, Chicago, under the direction of Leroy B. Firman, the General Manager, and, at the time, had a number of District Call Box lines centered in that office, each subscriber being equipped with a call box for "messenger," "carriage," "Doctor," "express wagon," "fire" and "police." Each call circuit was looped in series through a number of these subscriber station call boxes and terminated in a Morse register at the district office, where a clerk made tickets of the calls, dispatched the messengers, etc. The telephones of that exchange were first introduced among these call box subscribers, each telephone line being an individual grounded circuit, direct to the exchange switchboard. The call boxes were adapted to furnish the signalling for the telephone calls by the addition of two extra signals, one "telephone use" and the other "telephone through."

The original switchboard was located in the public A. D. T. office and consisted of a panel board into which were screwed the type of terminal sockets used in medical battery outfits which were being manufactured by the Western Electric Manufacturing Company. These sockets were ordinary flat head slotted wood screws, having small central holes bored axially through their heads.

The telephone line wires were connected to these screws by being laid in the holes before they were run down into place, thus making contact alongside the threads. Each telephone line terminated in a socket of this type, and there were no other connections or signalling apparatus of any kind wired to these terminal sockets. A telephone was provided for an operator near the call registers for the purpose of talking with the subscribers, and this telephone was also wired to the switchboard. The connections between the telephone lines on this switchboard were made by flexible cords with terminal pins which fitted the screw sockets.

When the clerk at the call register received a call for "telephone use," a ticket was made out giving the name of the party calling and passed to the telephone operator who connected the line socket of the calling subscriber to the socket of the operator's telephone. The subscriber was then answered,

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the name of the desired party ascertained, and the connection made with a direct cord. When the called subscriber came to his telephone, he turned the switch and answered the operator. When the subscribers were through talking each one was supposed to signal "telephone through" on his call box, whereupon the register clerk advised the telephone operator to take down the connection.

After about 50 or 100 telephone lines had been established, it was found that the public office was too crowded and unsuitable for this telephone exchange, so the apparatus was moved into a small room back of the public district office, to which the register clerks in the front office sent tickets for "telephone use" and "telephone through" by messenger.

The lines increased until this small room was found inadequate and the telephone apparatus was moved into a larger back room, and special call registers provided for the telephone subscribers. In this room the number of lines multiplied so rapidly that Mr. Firman was obliged to put on assistant operators and switchmen, and finally to provide extra switchboards for the accommodation of the additional lines. This created another difficulty in the necessity of connecting between switchboards when a subscriber on one switchboard wanted a subscriber on another switchboard.

As the number of subscribers further increased and connections on the switchboards became more numerous and confusing, it was evident that the switching facilities were inadequate, and that a radically improved system would be necessary in the near future.

The foregoing description of this exchange has been presented in detail, to give a picture of the conditions which forced the production of the Multiple System.

There were in the "Edison" Exchange many lines which were outside of the range of call box service given by the American District Company; and these lines were specially treated by the provision of line signals operated by relays. Rows of terminals, normally connected by flexible cords, were provided for the connection and disconnection of the line signals, and many motions were necessary for an operator to effect a connection between two such subscribers.

My first telephone invention was a switch to simplify the operation and facilitate connections between subscribers of this class.

It was called a jack-knife switch because of its resemblance to a jack-knife and its employment eliminated the extra operations involved in disconnecting and reconnecting the line signal circuit.

The jack-knife switch consisted of a metal plate about an inch long, one-half inch wide, and one-quarter inch thick, screwed flat against the face of the switchboards. A movable member, hinged at one end and controlled by a spring, resembled the blade of a jack-knife. Mounted on the frame, but insulated therefrom, was a contact point against which the end of the movable member normally rested and made electrical contact. Two plug holes were provided in this connecting socket, or switch, so arranged that the movable member or blade partly closed these holes, whereby the insertion of a plug would force the blade slightly out of position, and open the normal contact.

In this circuit, the telephone line wire was connected to the metal plate, and from the normal contact of the switch a wire was extended to the line relay and thence to ground, thus doing away with the relay cord. A contact of the line relay closed a local circuit through an annunciator signal and bat-

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tery. The second plug hole in the frame member of the jack-knife switch permitted connections to be made between jacks while the operator's plug remained in the first hole.

The invention met with Mr. Firman's approval, and was adopted by him for use in the exchange for the lines not having call box service.

An alternative arrangement of my invention was the connection of normal contact of the jack-knife switch direct to an annunciator and ground. These jack-knife switches and the relay and annunciator arrangement of this invention were used in the Western Electric Manufacturing Company's "Universal Switch" quite generally used by telephone companies and which was developed about 1880 into the "Standard Switchboard."

The jack-knife switch was, I believe, the first piece of telephone apparatus to perform a switchboard function automatically.

When, in the Fall of 1878, the number of telephone lines and calls in the "Edison" Exchange had increased to such an extent that Mr. Firman realized that the switching facilities were inadequate and a radically improved system would become necessary, he gave this situation close personal attention, and his study of the matter resulted in the initial and basic idea of the telephone multiple switchboard.

His plan was to provide duplicate switchboards, on each of which all of the telephone lines would appear so that any two lines might be connected together on either of the boards. This was the broad invention of the multiple switchboard, and Mr. Firman is entitled to full credit for pointing out the way to unlimited expansion of the telephone exchange systems.

He worked on the details and enlisted the interest of his associates and of the Western Electric Manufacturing Company in carrying his scheme through. Toward the end of 1878 he made experiments and tests in which he developed his idea in detail, and adopted a definite plan. In February or March, 1879, two duplicate switchboards, with connecting points on each for all of the approximately 1,000 subscribers in the exchange, were installed in a new and larger room upstairs to which the exchange was moved.

The trouble anticipated from connections being made on one switchboard to numbers which might be "busy" on another, he ingeniously overcame by furnishing a "target board" on which was provided a hook for each line, these hooks arranged in similar numerical order to the line terminals on the switchboards. This "target board" was in plain sight of the switchmen, who reported to the target operator the numbers connected and disconnected, whereupon the target operator hung targets on the hooks of those lines which were busy, and took off the targets when notified that the lines were disconnected. Thus, by watching the target board the switchmen were able to avoid making double connections. In other respects the plan of operation, with the help of call boxes, was substantially as before.

With the relatively few subscribers served at that time, these duplicate switchboards, even with their makeshift "busy test," greatly improved the service, but the need of a more dependable and efficient "busy test" was clearly apparent.

At the time of developing his idea of the multiple switchboard and associated "target board," Mr. Firman did not consider that he had made an invention, his plan being a business expedient to provide for the needs of the rapidly expanding business. At a later date, Mr. E. M. Barton, I believe, called attention to the fact that Mr. Firman had made an important invention

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and suggested that the latter take out a patent to protect it, and offered to purchase such a patent when secured. Mr. Firman, therefore, filed his application on January 7, 1881, and a patent (No. 252,576) was issued on January 17, 1882, covering the broad switching principle of the multiple switchboard and the same was sold to the Western Electric Company.

Mr. Firman's invention, however provided only for lines terminating in open socket terminals and each equipped with a district call box, signals for "telephone use" and "telephone through" being received on the call box register in the same old manner and did not provide for the special telephone lines equipped with the jack-knife switches and operated with line signals.

Following his practice of discussing plans with his associates, Mr. Firman put forward his multiple idea not only as a good plan for adoption, but also requested our co-operation in perfecting it. This attitude and the interest which we all felt in the matter itself created activity and rivalry in the development of improvements.

The first invention of importance to the future of the Multiple Switchboard, after Mr. Firman's basic invention, was the Scribner Series-Multiple Jack-Knife Switch Circuit for the special subscribers who were not provided with district call boxes. Inasmuch as Mr. Firman planned to multiple only the call box subscribers, I conceived the idea of providing for each of these subscribers not equipped with call boxes, a series-jack-knife switch on each of the multiple switchboards. Their lines were wired as usual to the body of the first jack-knife switch, the normal contact of that switch being wired to the body of the switch on the next board and so on to the last normal contact, which was wired to ground through a line relay, having an annunciator signal and battery wired in circuit with its local contact.

It is worthy of note that this series multiple circuit, equipped with a jack-knife switch on each board, was such that the operator on the last board could, by plugging into a line, actually determine whether it was available for use or whether it was cut off at a switchboard ahead. Thus, in reality, a move was made in this circuit toward doing away with the target board and the furnishing of an automatic busy notification for the operators on the switchboards, but I do not recall that this busy test possibility was recognized at the time.

While Mr. Firman was devising his target board for indicating when lines were busy, he continually urged his associates to work on the design of better means for this purpose. My efforts produced the invention of a pneumatic visual busy signal to be shown instantly and automatically, in place of a target, when lines were busy. A pneumatic valve signal or set of signals for each line was operated by compressed air introduced through a small air pipe controlled by an electro-magnet energized by the closing of an extra contact on each line terminal. By inserting a plug into any one of the line terminals this contact was automatically closed. These sockets could be of either the solid block form or in the shape of my regular jack-knife switch with its series cutting off contact, the scheme being for the end of the connecting plug to push against the end of a rubber pin which extended through the board, where it closed an independent spring contact which operated an electro-magnet controlling the compressed air for that particular line.

Upon describing this arrangement to Mr. Firman, he was highly pleased with the idea and encouraged me to go ahead with its development. I con-

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structed models and made successful demonstrations at the office of the Western Union Telegraph Company where compressed air, used, I think, in operating the passenger elevators, was available. This invention was adapted for use with one signal for each line, all grouped on a single board like the Firman target board, but the preferred arrangement was a series of pneumatic signals, one at each of the multiple sockets of each line, with means whereby the insertion of a plug into any socket and the consequent closing of the busy wire circuit would energize the electro-magnet of that line and admit the compressed air to the pipe which controlled its pneumatic signal or series of signals. This pneumatic arrangement, however, was not adopted at the time, as more practical suggestions were soon brought forward. It, however, in a modified form in which electro-magnetic signals or lamps were substituted for the targets operated by compressed air, has been used extensively in connection with trunk lines, to provide visual busy signals. This pneumatic test circuit, embodied the first invention of arrangements for automatically establishing, by the insertion of a connecting plug at any line socket, connection to a busy test wire for that line, and of automatic indication, at each multiple position, of the fact of a line being busy. It is the basic principle of the busy test as used to-day.

The pneumatic test invention was made about December, 1878, and the constructing of experimental models and the making of tests extended through the Spring and into the Summer of 1879.

In the operation of Mr. Firman's multiple switchboards, signaling by use of call boxes was slow and the consequent passing of tickets annoying. Continued difficulty was experienced with the doubling or duplicating of connections and, as the volume of business increased, the need of instantaneous and reliable notice to operators when lines were busy assumed the shape of a serious necessity. The Scribner pneumatic, while successfully demonstrated, was complicated and the work of perfecting it was delayed by press of other matters and by my absence during the Spring of 1879 in New York.

In the month of October, 1879, Charles H. Wilson and Clark C. Haskins made their invention, called the "Wilson and Haskins 'try' circuit." They provided a series multiple circuit through one of the multiple boards after another, similar to my series multiple jack-knife switch circuit, but in which they extended the line from the cut-off contact on the last board back to an extra test contact adjacent to each one of the line switches on each of the multiple switchboards. These were open or dead end terminals for the purpose of "busy test" only, as this system was designed for lines having connection with American District call boxes. The test was made by connecting a test or "try" plug (leading from a calling battery through a signaling instrument) to the "try" contact of the line to be tested. If the test signal instrument responded, the operator would know that the line was clear through the entire line of jack-knife switches and that no plug was inserted in anyone of them, whereupon the required connection would be made.

The Wilson and Haskins "try" circuit was installed in the "Edison" Exchange, for the telephone subscribers having call box signaling as it would not take care of lines not provided with call boxes.

This was the first invention by which an operator could electrically test a line to determine whether it was busy and it was one of the fundamental steps in the evolution of the Multiple System.

In the month of October, 1879, and within a few days after the Wilson

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and Haskins "try" circuit invention, I produced what we called the Scribner Series Multiple "Try" Circuit. This comprised my Series Multiple Jack-Knife Switch Circuit through the line jacks of all the multiple switchboards, as designed for lines provided with line signals. From the cut-off contact of the line switch on the last multiple board I wired back through a second jack-knife switch mounted adjacent to the line switch on each board to and including the first board and finally from the cut-off contact of the last switch through the line relay to ground. These second switches were for testing purposes only. By providing a test plug arranged for the application of calling battery I enabled the operator to plug into a test switch, apply the test there, ring the desired party if not busy, and talk with him, the regular line switches being used for connecting the parties together.

This arrangement was designed for the lines of the subscribers not having call boxes on Mr. Firman's multiple board, but I do not remember whether or not it was installed on that board. It was the first example of telephone line embodying within itself connecting facilities, electrical busy test features, and provision for disconnecting a line signal while the line was in use.

Later in the month of October, 1879, and subsequent to these Wilson and Haskins and Scribner inventions, Milo G. Kellogg invented a multiple testing system.

He proposed to place a pair of extra contact springs beside each jack-knife switch; these springs were so arranged that the blade, when a plug was inserted, would press against an insulating pin and force the springs together. One of these springs was the busy test contact and all busy test contacts for each line, on all of the boards, were connected together. The other springs were all connected together on a common lead.

Each operator needing to test lines for busy, was to be provided with a test plug, bell and battery connected to this common lead, whereby the touching of the test plug to a busy test spring of any busy line would complete the local circuit and ring the test bell.

He also proposed an alternative arrangement in which a third spring was added to each set of test springs throughout the switchboards. These springs were arranged in the form of keys making connection with the busy test springs, upon being depressed by the operator. In this modified circuit the test bell wire for each operator was connected to all the test key springs of the lines in that operator's group instead of being connected to a test plug. With this alternative, the pressing of any test key performed the same function as the tapping of the test plug in the first described arrangement. Mr. Kellogg did not provide any signaling apparatus for calling over the telephone lines, but depended on the call box service.

The Kellogg "Try" Circuit was never installed on any switchboard, except by way of experiment, but Mr. Kellogg was entitled to credit for the feature, which eventually came into general use, of placing an individual contact of a busy test circuit, insulated from the line circuit, adjacent to each connecting point of each line on the multiple switchboard.

In the use of the Scribner Series "Try" Circuit, it developed that there was no advantage in plugging into the test sockets and leaving the plug there while calling the party. In fact it was necessary to connect into a line contact of a circuit as quickly as possible after ascertaining that it was dis-

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engaged, so as to establish the busy indication to the operators on the other boards.

I, therefore, about simultaneously with the Kellogg invention, invented a modification in which strap keys were substituted for the second or test switches of each line on each board. The test circuit passed through the keys in series as in the switches, the line into the lever of one key and out from the normal contact into the lever of the next key and so on through the last key to the annunciator. In testing a line for busy, the operator depressed the key associated with the switch of the desired number, forcing the lever into connection with an extra contact connected by a common wire through a testing signal and a calling battery to the ground.

Thus, by depressing the "try" key an operator would test a line and, if it was not busy, send the first ringing impulse to the required party's telephone, quickly plugging into the line switch, however, and holding the line from other operators.

This key "try" circuit went into service in a number of exchanges, and was the standard system for the earliest multiple switchboard installed after that of Firman.

At the end of October, 1879, about ten months after Mr. Firman's invention of the basic multiple idea, we had passed through the difficulties with the target board, and had employed the Wilson and Haskins "try" circuit for the call box subscribers. The difficulty of dealing with the busy lines, which had been a great trial for many months, was met and a dependable busy test for both call box subscribers and special lines at our disposal.

The Western Electric Manufacturing Company had, by this time, other customers requiring switchboards of large capacity. We received an order from Indianapolis for an equipment capable of handling a large growth for which nothing but multiple switchboards would be adequate.

It had been determined that two plug holes for each line at each position were unnecessary, and Mr. J. C. Warner, about that time, had invented the Warner series spring jack, having a heavy spring as the moving contact instead of a hinged member actuated by a spring. This spring jack had a mounting plate with two screws in the face of the board, its operating parts extending perpendicularly through a hole in the board and the wires connected at the back. The "Warner" spring jack became known as the No. 1 spring jack.

Mr. E. P. Warner had invented a telephone annunciator drop which consisted of an electro-magnet mounted horizontally from the back of the switchboard with its pole pieces protruding through the face of the board. A sheet iron drop shutter was pivoted on the face of the board with its pivots slightly above these pole pieces. The shutter normally laid back against the face of the board at a slight angle beyond the perpendicular. The tail of this shutter, below the pivots, swung in front of the curved pole pieces of the electro-magnet and a very slight current through this electro-magnet would over-balance the shutter and cause it to fall and indicate.

With the J. C. Warner jack in place of the Scribner spring jack and the E. P. Warner drop as the calling signal for all subscribers, the Scribner series multiple key "try" circuit was adopted for the Indianapolis switchboards. Each line passed in series through each of the multiple boards, back through the test keys, and was terminated on a separate answering board where the answering operators were located.

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For each line at the answering board, adjacent to its drop, was a contact point on which the answering operator could tap a plug to make connections in answering a call. The connections were ordered up by sending tickets to the switchmen on the multiple boards, who made the busy tests and put up the connections.

This board was practically a direct expression of the developments which had taken place in the "Edison" Exchange at Chicago, and it was the only exchange of this type installed.

An amusing experience at this exchange comes to my mind in connection with the use of the E. P. Warner drops. They were sensitive to the telephone signaling currents, and they were sensitive to other things. A gust of wind would throw them down in flocks, so the windows had to be kept closed and the operators forbidden to fan themselves, no matter how warm the room might be. One of the marvels of this exchange was the sensitiveness of these drops and a favorite way of impressing visitors with the wonders of the plant was by blowing against the board and bringing down a number of these shutters.

After the Indianapolis multiple switchboard was installed, I then made an invention which broadened the use of the telephone instrument in the exchange operating. Instead of using an electric test bell to indicate to the operators when lines were busy, I arranged for a "click" to occur in the operator's receiver whenever she listened on a pair of cords and tapped the calling plug onto the thimble of the spring jack of a busy line.

I provided a circuit in which these thimbles were connected together as a busy test feature, and the thimbles of a line would be crossed with the line itself when a plug was inserted in any spring jack of that line. These were single conductor plugs and cords. Each telephone line was grounded at the subscribers' end, and a battery circuit would be closed through the operator's receiver and a click heard when she tapped the plug into the thimble of a busy line.

Mr. F. Shaw had invented the idea of a "head band receiver" which could be worn by the operator continuously, and with these receivers it was very convenient for the operators to make these tests.

This click test did away with the ringing of the bells, definitely individualized each test to the operator who made it, provided an automatic test, as the click was incidental to the insertion of the plug, and increased the speed and reliability of the service.

The feature of notifying the operator of busy lines by a click in the operator's receiver has been in use ever since, and the arrangement of testing through the subscriber's line to ground was standard until the branch terminal switchboards were adopted.

About 1885 John J. Carty invented an improved busy test system which avoided any connection, when a line was in use, between it and its test circuit, by providing a local circuit for the busy test. This was accomplished by an extra conductor through the cord and in the plug. Connection to any given line, when a plug was inserted in a spring jack, was established through the tip of the plug to the spring of the jack. The busy test was placed on the test wire by the insulated sleeve of the plug through the extra conductor of the cord and the test battery to ground. By this arrangement the test click was not heard in the subscriber's telephone. This is an important feature

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of the busy test of to-day, but was not generally adopted until years after its invention.

The next step in the developments which led up to the modern multiple switchboard, was the placing of the line drops in panels at the sides of the multiple switchboards, such a number of drops assigned to each board as the operator or operators on that board could handle. In this arrangement keyboard shelves were provided, cords and plugs with pulley weights were furnished in pairs, and ringing and listening keys provided; the result being that an operator could answer, test, connect and disconnect. This brought the operations on each call entirely within the work of a single operator and wonderfully improved and quickened the service. At last the multiple board had been developed into a unit type in which each operator was situated about as favorably for giving service as in the case of an operator in a small exchange with a few lines.

The unit type of multiple switchboard section was complete in itself so that the operators on a section could serve, without outside help, a certain number of subscribers whose calling signals were located thereon. These sections had been used as separate units located in various parts of the operating rooms, thus wasting a great deal of floor space. It was inconvenient to work two or three operators on a section because only the one at the middle of the section could conveniently reach all of the lines in the multiple.

I proposed that all the sections of multiple spring jacks be placed in a continuous line in close formation, one section following the other, thus providing an uninterrupted bank of jacks in which all the lines of the exchange were repeated in each section, and any operator could reach all the lines as easily as the operator in the middle of a section. To do this, I moved the answering signals from the sides of the unit multiple sections and placed them along the top of the contiguous multiple switchboard. The drops were to be located above the multiple jacks together with the connecting cords and plugs. The ringing and listening keys remained on the keyboard which continued throughout the length of the multiple board with operators at convenient intervals.

This plan was adopted, unit sections just as before being employed and placed in line on the job, and the cables looped direct from one section to the next, saving floor space and cable, and facilitating the operating.

J. A. Seely then brought forward an invention which greatly improved the service and for which he is entitled to great credit.

This invention constituted the providing of a separate answering jack for every line. The circuit of each line passed through all of the series spring jacks of the multiple board and then back to the position on which the calling signal of that line was located and, therefore, on which it was to be answered. The normal contact of the answering jack was, of course, wired to its line signal so as to make the circuit complete.

This invention relieved the congestion of cords plugged into the multiple boards by half, and enabled the operators to associate each of the answering jacks quickly in their minds with the signal to which it corresponded. It was further provided by Mr. Seely that the answering jacks be located below the multiple jacks and in front of each operator, where she could plug in most quickly. Without the separate answering jacks it was very inconvenient to answer the subscribers whose multiple jacks were high in the multiple panel.

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This invention permitted much greater freedom in locating the answering jacks and increased both the reliability and rapidity of the service.

By the ordinary distribution of answering jacks, however, it so happened that a block of abnormally busy lines often fell to one operator, and Enos M. Barton at a conference between the Western Electric Company and the American Telephone & Telegraph Company proposed the idea of an intermediate connecting rack for distributing the wires leading to the answering jacks in a multiple switchboard system, permitting a systematic distribution of subscribers' lines among the operators in accordance with the number of calls received over each line. This scheme is covered in his patent No. 431,962 filed March 8, 1890.

Following the adoption of the contiguous multiple board and the separate answering jacks, a period of tremendous development occurred in the size of telephone exchanges, and many multiple switchboards were installed. To meet the requirements of larger exchanges, the practical limits of reach of operators were exceeded. This resulted in designing of spring jacks, plugs, and drops of smaller sizes, and the drawing together of the apparatus to the greatest possible extent. Various arrangements were tried for the placing of apparatus most conveniently for the operators and for improvements in the design of all of the component parts of the switchboard. On account of the height of these large multiple switchboards, the drops were raised beyond the reach of operators. In some exchanges sticks had to be furnished to the operators for putting up the drop shutters, but it was finally considered best that the drops be brought down within easy reach, so keyboards were lowered as far as possible and the drops were located below the jacks.

Another arrangement introduced was the "single cord board" in which the answering jacks were done away with, and the lines at each section terminated in the cords and plugs on their operator's position. In order that the signals should be cut off when a line was in use, plug socket switches were provided in which a line, after having passed through the entire multiple was brought to the line spring of the plug socket switch and then from the normal contact of the plug socket switch to the line signal. The cord of each line was tapped onto the spring of the plug socket switch in which that cord was located. Thus the lifting of the plug would cut off the line signal, as the insertion of a plug in the answering jack had done, and the operator could listen in as usual and operate that single cord as the calling cord on a connection.

One of the efforts to accommodate a greater number of subscribers on the switchboards, was in a large exchange we built for the Cortlandt Exchange of the New York Telephone Company in 1887. This exchange was arranged with a wide keyboard having a depression about 6 inches deep like a trough between the keys at the front half of the keyboard and the plugs at the back of the keyboard. In this trough the drops were located in easy reach, but out of danger of damage by the plugs. A saving of 6 inches of space in the height of the multiple panels was effected.

Richard V. Freeman, of the New York shop of the Western Electric Company, filed an application on July 25, 1884, for a patent on an invention made by him, which was an improvement over the costly and bulky method previously used, of mounting individual spring jacks in switchboard panels.

In this invention, a single strip of wood or other insulating material

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formed the mounting for the contact springs of the jacks, several of which were mounted thereon.

This invention resulted in somewhat decreasing the space occupied by the jacks, and lessened the cost of construction.

On January 31, 1887, Mr. H. B. Thayer filed a patent application for an important improvement in strip spring jacks in that he placed all the jack springs in banks or layers with rubber strips interposed between the different layers so that the springs of each strip could be properly insulated, and at the same time made within a smaller area than formerly. He also mounted all the springs on one side of the plate of insulating material, which permitted of the building up of the jack strips in the switchboard, one strip upon another, without chance of crossing any of the springs together. An important saving in space was thereby effected.

The close mounting of the multiple jacks in the latter arrangement, together with subsequent reductions in the size of jacks, made possible the locating, within practical reach of the operators, of the large numbers of lines now used in telephone exchanges.

Many other interesting and ingenious arrangements of switchboards were devised during those years, but the main principle of the series multiple circuit with series answering jacks and line drops with click busy test was generally used; all of the lines having been of the grounded circuit single wire type.

It happened, however, that a great amount of trouble had been experienced with cross-talk and also with noises on the telephone lines which resulted from the introduction of arc lights, high voltage telegraph circuits, etc., and various expedients had been considered for overcoming this difficulty.

Just about the time of the completion of the installation of the New York Cortlandt multiple switchboard, above mentioned, telephone engineers in conference decided that it would be necessary to use two wires for each line cable; each pair of wires being twisted to guard against outside disturbances and cross-talk, and it was further apparent that there would be an increasing number of subscribers who would require metallic circuits.

As a result of the conference decision, the Cortlandt board was recabled and provided with test circuits which permitted the use of both grounded and metallic circuits to be worked together. This was the first metallic circuit multiple switchboard.

The test system employed was known as the "retardation coil system," and was designed by me. The cabling system employed was invented by Frank B. Cook and James A. Cook, and first used in Pittsburg, Pa. This cabling system has been the one generally employed ever since its invention, and was a very substantial contribution to the industry.

In the growth of the telephone business and the employment in large exchanges of increasing numbers of sections of multiple switchboards equipped with the series circuit, trouble developed from the very large number of contacts introduced which, with the accumulation of dust, caused open circuits. It became evident that it would be necessary to provide some means for avoiding these series contacts, and I designed a circuit which included the basic principle of what later became the standard branch terminal or bridging switchboard, which has been the standard since about 1891.

In this design I provided circuits from which all series contacts were eliminated, the lines being bridged to the terminals on the various multiple boards and provision being made for cutting out the line signals.

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The first practical board of this type was manufactured for and installed in the city of Albany, New York, and its details were worked out in apparatus and in circuits by Mr. J. Steiner of the manufacturing department of the Western Electric Company at its New York house, and by Mr. O. A. Bell of the switchboard installation department. This board followed the basic principles above outlined.

The story of the Genesis of the Multiple Switchboard would not be properly covered if I did not mention a period of doubt of the multiple principle which was entertained in the early 90's by many telephone engineers, and describe the improvements in multiple switchboards which resulted from the proposals which caused this disturbance in the minds of those engineers.

Attention was directed to a new method of central office switching which was being employed at San Farncisco and other cities on the Pacific Coast, called the "express" system. This new equipment consisted of groups of small switchboards with trunk lines between them, similar to the old transfer boards of the early days, but it differed from the old design in the respect that it provided automatic signals so arranged that the removal of the receiver from the switchhook at the substation actuated the indicators at the central office to attract the attention of the operators and the replacement of the receiver served to automatically display a disconnect signal at the central office. The trunk lines between the various sections were operated by the "order wire" method, and each trunk was provided with an automatic disconnect signal at the called party's position, this signal being operated by the withdrawal of the plug at the calling position.

There were many opponents to the multiple principle, but the farsighted engineers of the time realized that the virtue of the new system lay in its automatic signalling feature. It was their contention that a multiple switchboard equipped with similar automatic signals would prove to be superior to the express system.

I designed a common battery multiple switchboard with the automatic signalling which we installed at Worcester, Mass., as a test case between the "express" and multiple systems, agreeing to replace it with a branch terminal board if not satisfactory. This was the first common battery multiple switchboard.

In the Worcester switchboard, line and supervisory lamp signals were controlled by the telephone switchhooks through relays energized by a common battery located at the central office. The substation sets were each equipped with local battery to supply the talking current. Lamp signals had been first used by J. J .O'Connell.

After the Worcester equipment was in successful operation, traffic observations demonstrated beyond doubt that multiple switchboards, when equipped with equally good signaling facilities, were preferable. In the meantime experiments were made at Wellesley, Lexington and Philadelphia which proved that local battery for transmitters at subscribers' stations could be done away with, and the transmitters supplied from the common battery which was required for the switchhook controlled switchboards signals.

At Louisville, Kentucky, there was installed a multiple switchboard in which was incorporated a common battery at the central office for supplying current to the substation transmitters as well as for signaling purposes, thus doing away with both the local transmitter batteries and the hand generators at subscriber stations. Lamps on the switchboard, operated by relays on a

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relay rack, acted as signals. The common battery was connected to the cord circuits through repeating coils. Supervisory relays were provided in the cord circuits.

While many improvements have since been made in the efficiency of lamps, relays, cords, plugs, jacks, keys, etc., as well as in the design of the switchboard sections and arrangement of apparatus, the Louisville multiple switchboard, known as the No. 1 Relay Board is, broadly speaking, the type used today in the large exchanges.

Fundamental features represented in the Louisville exchange were originated by John J. Carty, James L. McQuarrie, Frank R. McBerty, myself and others.

As a matter of interest I wish to call attention to the fact that the multiple principle of locating a terminal of each line in an exchange at each one of a number of switchboards is employed in both the full automatic and semi-automatic switchboard systems which are being promoted today. These automatic systems are so arranged that small groups of selectors serve large groups of lines and, in order that all the lines of a group may be made available to its selectors, their terminals are all joined by means of multiple wiring, including talking and busy test wires. The selectors are in reality mechanical operators.

We are now entering a period of important developments and possibly of radical changes in telephone switchboard practice as the result of which there is some probability of real innovations.

I do not attempt to foretell what schemes and devices may be adopted, but I shall be surprised if the basic multiple principle invented by Leroy B. Firman and the automatic busy notification which I had the good fortune to invent, are not found necessary features of the systems of the future.

I take pleasure in acknowledging the material assistance I have received from Mr. F. J. Holmes in the preparation of this paper.

I thank you for your attention.

VICE-PRESIDENT LOCKWOOD (presiding): This paper of Mr. Scribner's I am sure will be a classic in our record, and it fills up a gap which, I feel, has long been there. It will be very helpful to future readers and of very high historical value; and we are obliged to Mr. Weisiger for reading it.

Mr. Pickernell has written us a very interesting paper on the Introduction of the Composite System. Your Chairman will undertake to read this; or rather he will try to, because there is a gap that the author left in it, that he only knows of. You remember the story of Ethan Allen's clergyman, who continued to return thanks to the Almighty for the great victory at Ticonderoga. The old gentleman didn't say anything when the clergyman had returned thanks to the Almighty for the second, third, or fourth time, for the victory at Ticonderoga, but by and by the old gentleman pointed his finger at the preacher, when he was again in the act of returning thanks for the victory, and said, "Won't you please mention the fact that Ethan Allen was there?" That's why I am going to read this paper.

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THE INTRODUCTION OF THE COMPOSITE SYSTEM

In the winter of 1890 Mr. D. H. Bates submitted to Mr. E. J. Hall, Vice-President of the American Telephone and Telegraph Company, the Van Rysselberghe System of Simultaneous Telephony and Telegraphy. This system had previously been operated experimentally by the B. & O. Telegraph Company on various lines and on the heavy copper circuits of the Postal Telegraph Company between New York and Chicago. Mr. Bates offered one set of apparatus for experimental use.

Mr. Hall appointed a committee, consisting of T. D. Lockwood of the American Bell Telephone Company, Mr. G. A. Hamilton of the Western Electric Company, and F. A. Pickernell of the American Telephone and Telegraph Company to investigate the mechanical and electrical features of the apparatus.

The committee met and the apparatus was submitted by Mr. A. E. Leslie, representing Mr. Bates. This apparatus was enclosed in two boxes and contained the usual condensers of about 2 mfds. each and retardation coils of about 500 ohms each. The equipment was such as would equip one metallic circuit, and, by its means, a metallic circuit between New York and Boston, for example, would provide one talking circuit and two Morse lines. Up to this time the leased wires of the American Telephone and Telegraph Company had made use of single wires and these wires were of no use for telephonic transmission.

The committee set the apparatus up in the office of F. A. Pickernell and put it in operation. Barring slight disturbance to the telephone, certain sluggishness in the telegraph circuit and interference with the telephone clearing out signals, the service was satisfactory and gave promise, in the opinion of all, of being capable of commercial development. The committee decided to turn the apparatus over to F. A. Pickernell for demonstrations under commercial conditions.

Mr. Pickernell took over the apparatus and immediately made arrangements to install it between New York and Boston. For the period from March 14 to April 28, 1890, service was given by means of this Van Rysselberghe apparatus to several regular leased wire subscribers, and the usual telephone subscribers between New York and Boston.

The results were satisfactory and gave promise of great development. The only serious difficulty was that the clearing out drops on the telephone circuit were inoperative and operators had to supervise the connection by "listening in."

VICE-PRESIDENT LOCKWOOD (presiding): Here I can supply the gap. After April, 1890, when we turned the matter over to Mr. Pickernell, I had to look into the patent side of the situation, and I found out that the Belgian inventor, Von Rysselberghe, had taken out patents in almost every country in Europe before he had in the United States; and among others he took out patents in Denmark. But the patent law of Denmark at that time was peculiar, and provided that, while a Danish inventor might have a patent for a first period of five years, and then five years more, no person other than a subject of the King of Denmark could have a patent for

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more than five years, or a first period; but the United States law at that time provided that, if any patent was taken out in the United States which had previously been patented in any foreign country, the United States patent was limited to expire with the earliest expiring foreign patent. So, when I struck this matter of the Danish patent, and began to investigate that, I found that "there was something rotten in the State of Denmark," as Hamlet would say; and I reported the matter to Mr. Hudson, then President, and gave it as my opinion that we need not dicker with these people that were offering the patents for sale at all, but go ahead and use the invention any time we liked. They asked us two million dollars for it. Mr. Hudson was not content with a mere layman's opinion in patent law, and he had to get the opinions of a great number of patent lawyers, but that's aside—the paper goes on:—

The matter hung fire until April, 1891, when Mr. E. J. Hall instructed Mr. F. A. Pickernell to call on Mr. Chauncey Smith, General Counsel of the American Bell Telephone Company in Boston, and explain to him exactly what circuits were to be used in operating the Van Rysselberghe System of Simultaneous Telephony and Telegraphy. Mr. Pickernell started for Boston on the midnight train, but a wreck delayed the train, so that he did not reach Mr. Smith's office until noon the next day. Mr. Smith examined the drawings and discussed the problems involved, and finally stated that he understood the case thoroughly, and to say to Mr. Hall that the system described could be used, and that he would immediately so advise Mr. J. E. Hudson, President of the American Bell Telephone Company. This was a very satisfactory interview to Mr. Pickernell, and, upon leaving the office, he called on Mr. A. J. Lewis, Manager of the Boston office of the American Telephone and Telegraph Company. Mr. Lewis informed him that the main line between Boston and New York had been wrecked by a sleet storm the night before (April 3, 1891) and that it could not be repaired, in his opinion, in less than 30 days, and that he feared that the 20 leased wires, or most of them, would be lost before the service could be restored. At that time the American Telephone and Telegraph Company had 2 lines between New York and Boston, the main line carrying 40 through wires, and the shore line, newly constructed, 20 through wires. The shore line was intact. The outlook was discouraging, as the storm damage extended from Wayland, Mass., to Springfield, Mass., and the early damage reports had not been exaggerated. Mr. Pickernell went to the Adams House, and, after dinner, called up Mr. E. J. Hall at Morristown, N. J., and said to Mr. Hall that the next day, being Saturday, he was of the opinion that the shore line could be Van Rysselberghed and the leased wire service of the American Telephone and Telegraph Company reestablished by Monday morning. He repeated the verbal report of Mr. Chauncey Smith to the effect that we were at liberty to use the system, and Mr. Hall was much interested. He said: "Mr. Pickernell, call at Mr. Hudson's office the first thing to-morrow morning, and get instructions." Mr. Pickernell called on Mr. Hudson on Saturday morning and told him the whole situation. Mr. Hudson called Mr. Chauncey Smith by telephone and when he had finished, he said: "Pickernell, I hope you can do it, and what can I do to help you?" The only thing he could

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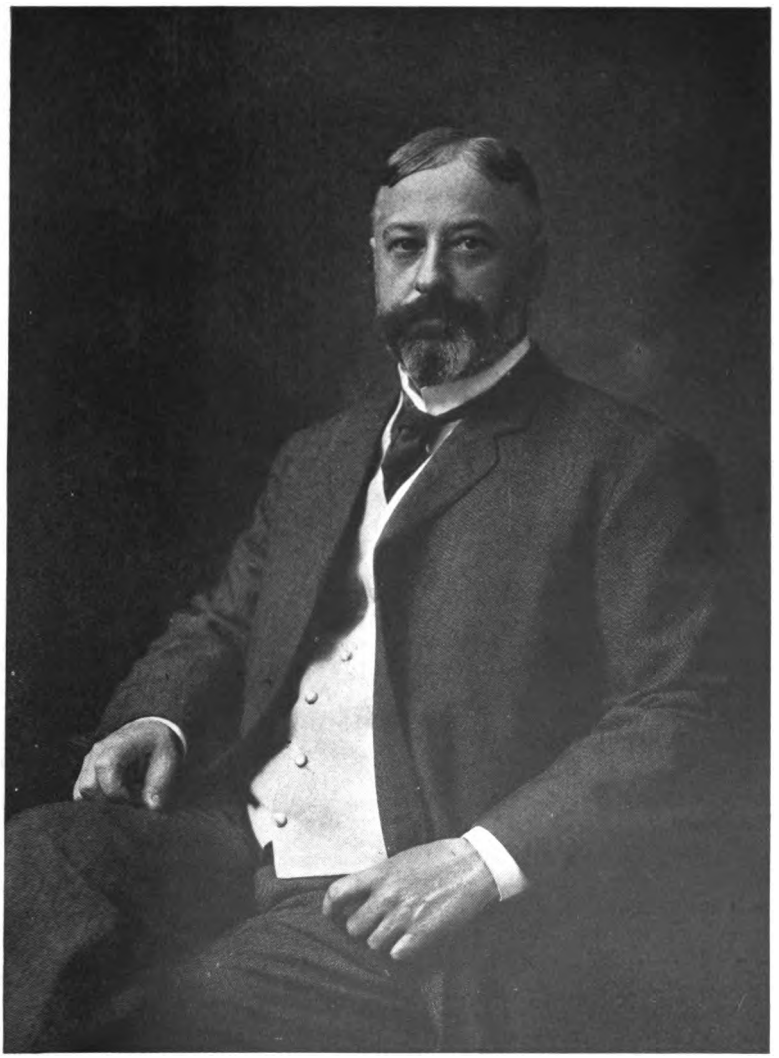

F. A. PICKERNELL

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do was to have the elevator run all night. Mr. Pickernell went to the office and got in touch with Mr. A. S. Williams, his assistant in New York. One of the difficulties of the situation which now confronted him was due to the fact that nobody in the New York office was familiar with the Van Rysselberghe System, as all discussion had taken place in the committee. It was necessary to make a circuit drawing and transmit it to Mr. Williams by telephone. This was done and the apparatus arranged for.

We made use of 600-ohm retardation coils used in the "busy test" circuit of the rebuilt Cortlandt Street switchboard, which were in stock. This was before the days of the modern condenser, and the Western Electric Company were out of stock, condensers in those days being used mostly by the telegraph companies.

Mr. Pickernell immediately got in touch with Mr. Marshall, a condenser manufacturer in New York. Mr. Marshall had a large shipment of condensers he was making on a rush order for the Chicago office of the Western Union Telegraph Company, but he agreed to let us have them for this emergency use. Accordingly, the apparatus was assembled, and the equipment for Boston left on the 3 o'clock train for Boston, Mr. G. L. Betts, Chief Clerk to Mr. Pickernell, taking it as extra baggage. That night and Sunday, the apparatus was installed at both ends and ready for operation Monday morning. One condenser was defective. But Monday morning we started 19 leased wires by the Van Rysselberghe System, between Boston and New York, and the situation was saved. Since that time the system, vastly improved, has been in continued use and has been of very great value to the Company. As it became standardized, it became desirable to get a better name, and accordingly Mr. T. D. Lockwood was asked to name it. He selected what has seemed to most of us the appropriate name "Composite," and in this way it has become the designation of an important branch of the Long Lines Department of the American Telephone and Telegraph Company.

VICE-PRESIDENT LOCKWOOD (presiding): Can you tell us anything, Mr. Starrett, about the exact time of the banquet, either Central or Eastern, or both?

SECRETARY STARRETT: I notice on the bulletin the banquet was announced for 8:30. On the program it is set for 7:00 o'clock sharp. The management of the hotel say they will not be able to serve it until 7:30, but the Committee is going to confine itself to its original program of 7:00 o'clock, and the Pioneers and guests are requested to be ready at 7:00 o'clock to enter the dining room.

VICE-PRESIDENT LOCKWOOD (presiding): A motion to adjourn is now in order.

MR. BETHELL: I move we adjourn.

This motion was seconded and carried, and adjournment sine die was taken at 5:00 P. M.

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INCIDENTS SUBMITTED BY MR. J. W. THOMPSON OF SAN FRANCISCO, CAL.

IN installing the first telephone exchange in San Diego, Cal., in 1882, some funny incidents occurred:

The first question was whether or not we should ask for a City franchise. My attorney thought inasmuch as it was a plaything, so to speak, we might as well go ahead without it; we had a right to use the streets and highways if we did not obstruct them. We thereby acquired an "easement," which could not be disturbed. We acted accordingly.

In construction we utilized housetops as much as possible. The length of spans was immaterial. In one instance we came to a two-story house of an ex-colonel of the Mexican Army, who felt greatly honored that we should attach the wires to his house. When accomplished, he ran up the American and Mexican flags. "Senors, I salute you."

Another housetop incident: A personal friend of mine got married and moved into a cottage where I had a wire on the building. It was a long span and the wire "hummed" terribly. He came to me one day and asked if the humming could be stopped, that his wife could not sleep and was becoming nervous over it. I remarked to him that the previous tenant never objected, so I thought it was all right, but it did not occur to him that the previous tenant was very deaf. However, he said they would try it a while longer. Subsequently we removed the wire.

Another incident, contrary to above, was a gentleman who hoped we would *not* remove the wires from his house as the humming was very soothing to his nerves.

Soon after opening my exchange, a lady friend came into the office, I asked if she would like to try the "fone." She said "yes." I switched her to my residence where my wife was at the other end of the wire. As soon as she heard my wife's voice she exclaimed in great astonishment: "Why that's your wife," and dropped the receiver on the floor, breaking it.

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REMINISCENCES OF B. FRANKLIN WORDELL OF BOSTON.

ABOUT 1878, a salesman called at an office in New Bedford where I was bookkeeper and, getting one of the proprietors and the engineer of the plant, explained that he had for sale a formula for making a glue that was a wonder, etc. He was an unusually clear and free talker, knew his story, and was interesting to hear. In the course of his talk he said: "I was in Pawtucket yesterday and visited a thread mill, I showed the super my formula to his satisfaction and he finally said he wanted it, but that the agent of the mill did all the buying at his office down town and I must see him. So I walked back a mile and a quarter to agent's office and explained. He listened to my story, eyeing me sharply, and then asked, 'Did you say the super wanted this?' 'He did, sir,' I answered. Still looking at me keenly he remarked, 'We will see about that,' and going to a corner of the room he took from a hook a tin looking like a spice box attached to a wire or a cord, and drawing the cord or wire straight, as it was fastened to the wall, he blowed sharply into the box or cup, then quickly placed it to his ear and listened. In a few seconds he moved the box to his mouth and spoke into it. 'That you, Mr. Super?' and then box to his ear a moment, and he talked into it again. 'Man here with a formula for sale, says you told him you wanted it,' then cup to ear again, a moment, then a gruff 'all right,' and he hung the box up and came back to me. (Incidently he bought.) But gentlemen," said the salesman, "that agent had been talking with his super *a mile and a quarter away,* just the same as you and I are talking here together in this office, ain't that wonderful? Just think of it, over a wire stretched between the office and the mill, those two men *a mile and a quarter apart,* mind you, had been talking just as if they were in the same room, he told me it was called a tel-e-phone."

Of course I can't give you, sir, any idea of the wonder and astonishment in that salesman's voice and face as he kept repeating that wonderful idea, *a mile and a quarter away.* In reading, years since, step by step the rapid advance in power of this wonderful invention, that salesman and his story have often come back to me.

Yours respectfully,

B. FRANKLIN WORDELL,
New Bedford, Mass.

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TELEPHONE PIONEERS OF AMERICA

INCOME AND EXPENSES

From January 1, 1916 to December 30, 1916.

Balance, Jan. 3, 1916		$1,249.85
Income:		
Dues 1913	$10.00	
Dues 1914	48.00	
Dues 1915	338.00	
Dues 1916	2,332.00	
Dues 1917	28.00	
Dues 1918	4.00	
Fees	387.00	
Bond Interest	27.00	
Sale of Year Book	1.75	
		3,175.75
		$4,425.10
Expenses:		
Salaries	$783.00	
Postage	234.82	
Stationery	604.66	
Year Book	1,044.38	
Incidental	33.69	
Badges	79.20	
		2,779.75
Balance		$1,645.85
Assets:		
Cash (Corn Exchange Bank)	$884.80	
Bonds (A. T. & T. Co.)	600.00	
Office Furniture	82.90	
Emblems	27.65	
R. H. Starrett, Advance a/c	50.00	
		$1,645.85

January 15, 1917.

G. D. MILNE, Treasurer.

Audited and found correct:

S. A. RICHARDSON,
J. F. HATHAWAY, } Auditing Committee.

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RECORD OF REGISTRATION.
SIXTH ANNUAL MEETING
TELEPHONE PIONEERS OF AMERICA.
ATLANTA, GA., OCTOBER 27 AND 28, 1916.

MEMBERS.

	Men	Women	Total
RESIDENTS OF ATLANTA.....	20	2	
From out of city.....	120	17	
	140	19	159

GUESTS.

RESIDENTS OF ATLANTA.....	5	14	
From out of city.....	21	55	
	26	69	95
Grand Total			254

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PIEDMONT HOTEL
ATLANTA

MENU

PATTY OF CAVIAR

BLUE POINTS ON HALF SHELL

GREEN TURTLE SOUP — AMONTILLADO
HEARTS OF CELERY — SALTED NUTS
QUEEN OLIVES

CRAB MEAT A LA ROYAL EN CROUSTADE

REED BIRDS, RICHELIEU — FRUIT PUNCH

TOURNEDOO OF BEEF — BAYARD
SMALL PEAS

SHERBET IMPERATRICE

BREAST OF GUINEA CHICKEN — BIGARADE
SWEET POTATOES — NOISETTE

ASPARAGUS VINAIGRETTE

GLACES FANTASIES

DEMI TASSE

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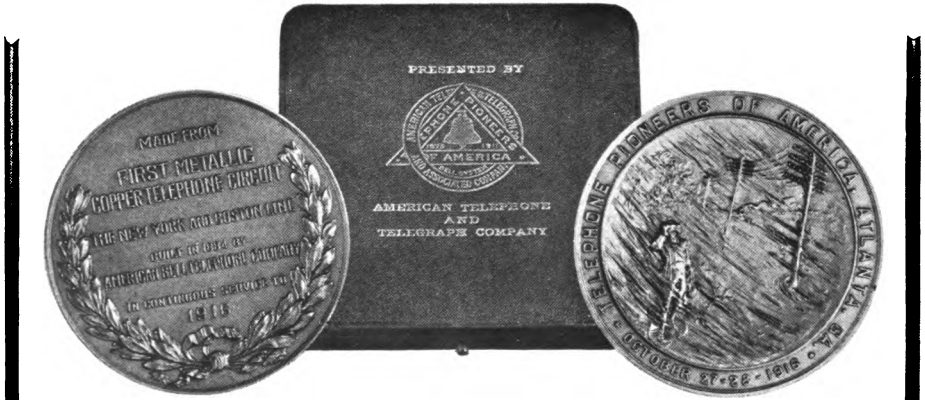

THE SOUVENIR

THE "BRITANNIA" JOINT

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HISTORY *of* THE WIRE

PIECE of the first copper wire strung for Long Distance Telephone service.

The wire is No. 10 B. & S. gauge, hard drawn copper (weighing about 180 lbs. per mile).

It formed a part of the first copper metallic circuit strung for Long Distance business between New York and Boston, via New York, Port Chester, Bridgeport, New Haven, Westerly, Providence and Boston, and was originally established by the American Bell Telephone Company for experimental purposes.

The wire was ordered on May 25, 1883, from the Bridgeport Brass Company, and was strung by the Southern New England Tel. & Tel. Co. for the American Bell Company, over various local companies' lines between New York and Boston in the Spring of 1884.

Experiments and tests were conducted over the circuit during the Spring and Summer of 1884, and on September 4, 1884, was turned over for Commercial Business.

On December 18, 1885, the American Tel. & Tel. Co. purchased this circuit from the American Bell Tel. Co. and the above piece of wire, which formed part of this original circuit, in the section between New London, Conn., and Westerly, R. I., was in continual use from 1884 to March, 1916, a period of 32 years.

THE "BRITANNIA" JOINT

The form of joint used was introduced by Mr. Edwin Clark, of England, and is known as the "Britannia" joint.

Authority — "TELEGRAPHY" by W. H. Preece and J. Sivewright, published by Longmans, Green & Company, London, 1891.

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Guests at the Banquet, Hotel Piedmont

H. E. Allen, W. H. Adkins, E. H. Allen, H. F. Adams, W. I. Atwater, Preston Arkwright, Forrest Adair.

J. S. Bridger, Mrs. J. S. Bridger, H. D. Bauer, E. E. Bawsell, W. J. Berry, Mrs. W. J. Berry, F. J. Boynton, Mrs. F. J. Boynton, L. H. Beck, Mrs. L. H. Beck, T. B. Baird, Werter G. Betty, Mrs. W. G. Betty, M. J. Burns, R. B. Babington, M. H. Buehler, H. C. Baker, Mrs. H. C. Baker, F. H. Bethell, H. J. Baumann, Mrs. H. J. Baumann, Miss M. R. Bennett, John T. Blake, Mrs. John T. Blake, E. B. Baker, W. K. Boardman.

J. J. Campion, Asa G. Candler, W. F. Crowell, C. M. Candler, Robert Cline, Mrs. Robert Cline, Miss Olive Cline, Chas. H. Conoley, Mrs. Chas. H. Conoley, Miss Alliene Conoley, Miss Minnie E. Cole, J. W. Crews, E. B. Cook, J. N. Cox, T. T. Cook, Miss Nellie Clair, A. S. Campbell, Mrs. A. S. Campbell, Miss Catherine G. Collins.

W. W. DeLany, Mrs. W. W. DeLany, Chas. B. Doolittle, Thos. B. Doolittle, K. J. Dunstan, Mrs. K. J. Dunstan, Miss Dorothy Dunstan, R. Dean, R. W. E. Davis, C. G. DuBois, J. J. Donnelly, J. H. Donnelly, Mrs. J. H. Donnelly, Miss Mamie Devlin.

J. D. Ellsworth, C. M. Evans, Frank Bruce Ellis, Mrs. Frank Bruce Ellis, M. A. Erskine, Mrs. M. A. Erskine, Miss Teresa Erskine, J. W. English.

D. P. Fullerton, Mrs. A. V. Freeman, Mr. Edgar Freeman, J. D. Foster, Thos. E. Fagan, Edward T. Fisher, B. Foraker, Mrs. B. Foraker, Mrs. E. Foraker, T. P. Fitzpatrick, J. T. Featherston.

J. W. Gibson, Mrs. J. W. Gibson, W. T. Gentry, Mrs. W. T. Gentry, W. H. Gibbs, Mrs. W. H. Gibbs, Mrs. W. Gibbs, Miss Mary J. Gannon, Jos. A. Gately, Mrs. Jos. A. Gately, J. L. Gaynor, Mrs. J. L. Gaynor, C. A. Gates, Mrs. C. A. Gates, N. T. Guernsey, W. C. Graham, Mrs. W. C. Graham, William Gaudue, Steven B. Goodloe, Jas. R. Gray, John W. Grant.

J. R. A. Hobson, J. M. B. Hoxsey, P. K. Higgins, Foster Hume, Mrs. Foster Hume, Leland Hume, Mrs. Leland Hume, Miss Georgia Hume, W. P. Hunter, John P. Holder, W. C. Hutt, Mrs. W. C. Hutt, J. S. Hough, Mrs. J. S. Hough, K. C. Hardcastle, Mrs. K. C. Hardcastle, W. J. Hiss, H. B. Hoopes, Mrs. H. B. Hoopes, E. A. Hussey, Geo. G. Hall, W. E. Huntington, Clark Howel, Frank Hawkins, Fred Houser.

Miss Bessie Ingram, T. L. Ingram.

L. H. Jenks, A. L. Joynes, Mrs. A. L. Joynes, Chas. A. Janke, Mrs. C. A. Janke, Miss Mildred Janke.

John Kerksis, Mrs. John Kerksis, W. J. Keenan, V. H. Kreighshaber, Miss Ida Krebs, B. A. Kaiser, Mrs. B. A. Kaiser, Miss Elizabeth Kress.

T. D. Lockwood, Mrs. T. D. Lockwood, Robert Lyon, D. W. Lacy, Robt. J. Lowry, James A. Lynch, J. W. Ladd, Theo. L. Liesinger, Mrs. A. E. Lowell, Arthur Lockwood, Mrs. Arthur Lockwood.

A. W. Mumper, C. P. McCluer, Mrs. C. P. McCluer, C. L. Morrell, W. P. Morris, Mrs. W. P. Morris, S. H. Myers, J. H. McCulloch, C. W. Mackenzie, Mrs. C. W. Mackenzie, H. P. Marshall, Mrs. H. P. Marshall, R. T. McComas, Miss Estelle McGraw, S. P. Morton, R. A. Moore, H. C. McKay, Geo. D. Milne,

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John P. Mayers, L. B. McFarlane, Miss Mary Miller, Miss Ocy Miller, Miss J. S. Mott, R. F. Maddox, Sanders McDaniel, K. G. Matheson, E. P. McBurney.

P. J. Nix, Mrs. P. J. Nix, J. B. Nevin, Judge W. T. Newman, W. T. Naff.

J. O'Rourke, Mrs. J. O'Rourke, C. L. Ovitt, Mrs. C. L. Ovitt, John C. Peaty, Mrs. J. C. Peaty, George B. Pierce, Mrs. G. B. Pierce, Miss Mildred Pierce, Graham Phelan, Mrs. Graham Phelan, Robert H. Polk, W. B. Perkins, Miss K. V. Pettit, F. J. Paxon.

A. M. Robinson, James Robb, M. C. Rorty, J. C. Rourke, Ben S. Read,

S. H. Smith, T. P. Sylvan, Reuben F. Smith, Jr., P. J. Skolsky, A. T. Smith, Mrs. A. T. Smith, Chauncy Smith, J. M. Smyth, Mrs. J. M. Smyth, C. R. Swinney, C. A. Stair, M. B. Speir, J. J. Seguin, T. M. Smith, R. H. Starrett, Miss K. M. Schmitt, J. W. Stearns, Henry A. Smith, Mrs. Henry A. Smith, L. K. Smith, H. A. Smith, Jas. W. Smith.

W. M. Todd, Mrs. W. M. Todd, A. W. Tuttle, Miss Katherine Tatum, W. T. Tatum, A. C. Thomas, M. F. Sullivan, F. C. Toepleman, Mrs. F. C. Toepleman, D. F. Turnbull.

G. G. Volkmar, Mrs. G. G. Volkmar.

H. W. Wilder, Mrs. H. W. Wilder, Louis K. Webb, W. B. Wallace, W. E. Westlake, F. L. Woodruff, H. C. Williams, J. H. Winfield, J. A. Wyatt, W. H. M. Weaver, Mrs. W. H. M. Weaver, Miss Anna Weaver, Miss M. Walker, W. T. Westbrook, Jr., D. Leet Wilson, Geo. P. Wilt, Mrs. G. P. Wilt, E. J. Wallis, Mrs. E. J. Wallis, H. B. Walthall, W. L. Woodruff, C. H. Wilson, Mrs. C. H. Wilson, P. V. Warner, Mrs. P. V. Warner, W. K. Wagner, T. D. Webb, N. C. Watts, Miss Margaret L. Woods, Mrs. G. A. Winters, Hon. Jas. G. Woodward.

List of Pioneers in Attendance at Sixth Annual Meeting

W. H. Adkins, H. E. Allen, W. H. Allen, E. H. Allen.

J. S. Bridger, H. D. Bauer, E. E. Bawsell, W. J. Berry, L. H. Beck, Werter G. Betty, M. J. Burns, R. B. Babington, M. H. Buehler, H. C. Baker, F. J. Boynton, H. J. Baumann, F. H. Bethell, Miss M. R. Bennett, John T. Blake, E. B. Baker, W. K. Boardman.

J. J. Campion, W. F. Crowell, Robert Cline, Chas. H. Conoley, Miss Minnie E. Cole, J. W. Crews, E. B. Cook, A. S. Campbell, Miss Catherine G. Collins.

W. W. DeLany, Chas. B. Doolittle, Thos. B. Doolittle, K. J. Dunstan, C. G. Dubois, J. J. Donnelly, John H. Donnelly, Miss Mamie Devlin.

C. M. Evans, Frank Bruce Ellis, M. A. Erskine.

D. P. Fullerton, Mrs. A. V. Freeman, B. Foraker, T. P. Fitzpatrick, J. T. Featherston, Edward T. Fisher, Thos. E. Fagan.

J. W. Gibson, W. T. Gentry, W. H. Gibbs, Miss Mary J. Gannon, William Gaudue, W. C. Graham, Jos. A. Gately, Steven B. Goodloe, J. L. Gaynor, C. A. Gates.

P. K. Higgins, Foster Hume, Leland Hume, W. P. Hunter, John P. Holder, W. C. Hutt, W. J. Hiss, H. B. Hoopes, Mrs. H. B. Hoopes, E. A.

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Hussey, Geo. G. Hall, W. E. Huntington, K. C. Hardcastle, J. S. Hough, J. M. B. Hoxsey.

Miss Bessie Ingram, T. L. Ingram.

A. L. Joynes, L. H. Jenks, Chas. A. Janke.

John Kerksis, W. J. Keenan, Miss Ida Krebs, B. A. Kaiser, Miss Elizabeth Kress.

T. D. Lockwood, Robert Lyon, D. W. Lacy, James A. Lynch, J. W. Ladd, Theo. L. Liesinger.

A. W. Mumper, C. P. McCluer, C. L. Morrell, W. P. Morris, R. T. McComas, Miss Estelle McGraw, S. P. Morton, R. A. Moore, H. C. McKay, Cecil W. Mackenzie, Geo. D. Milne, John P. Mayers, L. B. McFarlane, H. P. Marshall, Miss Mary Miller, Miss Ocy Miller, Miss J. S. Mott, S. H. Myers, J. H. McCulloch.

P. J. Nix, W. T. Naff.

J. O'Rourke, C. L. Ovitt.

John C. Peaty, Geo. B. Pierce, Robert H. Polk, W. B. Perkins, Miss K. V. Pettit.

A. M. Robinson, J. C. Rourke, Ben S. Read, James Robb.

S. H. Smith, Reuben F. Smith, Jr., P. J. Skolsky, A. T. Smith, Chauncy Smith, J. M. Smyth, M. B. Speir, J. J. Seguin, T. M. Smith, R. H. Starrett, Miss K. M. Schmitt, J. W. Stearns, M. F. Sullivan, W. M. Todd, A. W. Tuttle, Miss Katherine Tatum, W. T. Tatum, A. C. Thomas, F. C. Toepleman, G. G. Volkmar, H. W. Wilder, Louis K. Webb, W. B. Wallace, W. E. Westlake, F. L. Woodruff, H. C. Williams, J. H. Winfield, J. A. Wyatt, W. H. M. Weaver, Miss M. Walker, W. T. Westbrook, Jr., D. Leet Wilson, Geo. P. Wilt, W. K. Wagner, C. H. Wilson, P. V. Warner, T. D. Webb, N. C. Watts, Miss Margaret L. Woods.

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COMMITTEE OF ARRANGEMENTS

J. Epps Brown, *Chairman*
Barney A. Kaiser
Albert L. Salt

LOCAL COMMITTEES

RECEPTION COMMITTEE

F. L. Woodruff, *Chairman*

W. H. Adkins
E. E. Bawsell
Lewis H. Beck
J. S. Bridger
Miss Minnie Cole
W. W. DeLany
T. R. Gentry
J. W. Gibson
J. M. B. Hoxsey
Leland Hume
W. C. Hutt
T. L. Ingram
Miss Bessie Ingram
C. P. McCluer
Chauncy Smith
Miss Kate Tatum
F. C. Toepleman
W. B. Wallace
L. K. Webb
W. H. Wilder
J. Epps Brown
J. L. Brown
Hunt Chipley
Brutus Clay
W. T. Gentry
Evelyn Harris
Sydney Hogerton
C. J. Holditch
Edward Lyle
Addison Maupin
F. E. Montague
A. R. Nininger
Judge H. E. W. Palmer
H. O. Reilly
K. Ward Smith
D. M. Therrell
E. J. Wallace
George J. Yundt

WELCOMING COMMITTEE

C. K. Selden, *Chairman*

J. J. Doonan
L. A. Doland
Rouse Ellington
Marshall George
P. W. Green
Paul Huff
W. P. Hunter
D. W. Lacy
Miss Ada Mealor
Mrs. Bettie Mitchell
J. E. Warren
I. E. Wilcox
W. K. Jenkins

REGISTRATION COMMITTEE

Kendall Weisiger, *Chairman*

J. C. Buchanan
H. F. Bethea
W. L. Burke
Charles Carter
W. W. Davidson
M. E. Floersch
Roy Gentry
George Harrison
H. H. Hart
E. C. Houston
F. J. Massenburg
Fairfax Montague
T. Ramsay
W. W. Ross
Marshall Waldron
J. C. Willis
Ben Willis
L. D. Sharp
Evan Howell

AUTOMOBILE COMMITTEE

T. R. Gentry, *Chairman*
J. W. Latham, *Vice-Chairman*

J. C. Symmes
M. M. Simmons
B. S. Talmage
E. B. Robson
F. M. Myers
D. F. McClatchey
G. T. Bush

HOTEL COMMITTEE

Macon Martin, *Chairman*
Stanley Mathewson, *Vice-Chairman*

C. W. Butler
E. F. Brown
J. J. Doonan
H. S. Dumas
L. F. Green
W. E. Gathright
Ed. Gay
F. J. Jamison
F. B. Saunders
J. J. McTiernan
W. R. Whitaker

ENTERTAINMENT COMMITTEE

The Telephone Society of Atlanta
H. B. Wey, *President*

V. J. Hurley
F. B. Saunders
W. B. Thompson
W. P. Hunter
R. S. Ellington
H. O. Connolly
J. E. Bivins
A. W. Renfrew

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TELEPHONE PIONEERS OF AMERICA.

Sixth Annual Convention.

From *The Telephone Review.*

ABOUT ninety Telephone Pioneers and members of their families from New York, New England, and Canada, assembled at the Pennsylvania Terminal in New York City on October 25 and boarded a special train de luxe for Atlanta to attend the Sixth Annual Convention of the Telephone Pioneers of America, scheduled to meet in that hospitable Southern city on the twenty-seventh and twenty-eighth.

The train left at 5.40 p. m., and stops were made at Newark, Philadelphia, Baltimore, Washington, and Richmond, where local Pioneers were waiting to join the festive party. At Richmond two men waited up until 2.45 a. m., so as to travel with the main party. The experience of each year has shown that the informality and good-fellowship among scores of Pioneers on these special trains to the conventions have contributed largely to the intimate acquaintanceship and enjoyment afforded by the conventions themselves. Dignity and diffidence impose no restraint where the social features predominate, and the democracy of the Bell organization when at play shows how sincere is the mutual regard and friendliness between officials and subordinates of the companies when at work.

Upon arriving in Atlanta at 9 p. m., the party, numbering 106 souls, was met by the Welcoming Committee of the Southern Bell, comprising almost everybody in the telephone service in Atlanta and a representative part of the other citizens. Here they were merged with Pioneers from all other parts of the country, to all of whom the gates of the city were opened wide, and where for two days a little business and much pleasure occupied them.

MORNING SESSION OPENS.

The headquarters of the Pioneers were the Piedmont Hotel. After registration the Pioneers were given an informal "at home," and the next morning at 9.30 o'clock the convention was formally opened. The president, Mr. Theodore N. Vail, and Dr. Alexander Graham Bell both expected to be present, but were unavoidably prevented. The vice-president, Mr. Thomas D. Lockwood, presided.

After expressing Mr. Vail's regret over his absence, Mr. Lockwood introduced the Mayor of Atlanta, the Hon. James G. Woodward, who welcomed the Pioneers to the city.

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Grove Park Inn and Golf Links, Asheville, N. C.

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WELCOME BY MAYOR WOODWARD.

In his remarks Mayor Woodward said:

It is quite a pleasure to me to extend the official welcome of this city to this most splendid audience. It is very seldom that mayors have the opportunity of extending a welcome to an organization of such wide scope, as this covers the entire American soil. The very name of your organization means that you are together from long service, affiliation and association that have been pleasant, and it is keeping you ever mindful of it by the formation of this Pioneers' Association.

It has been my pleasure to be in close contact for the last twenty-five, nearly thirty, years with the head of the telephone companies in this part of the country, and those associations have been good for the community and the up-building not only of telephones, but of the electrical business.

Mayor Woodward then paid a tribute to Mr. W. T. Gentry, president of the Southern Bell, who had been ill and, contrary to the advice of his physicians, had left his sick-bed to attend this opening meeting. When he arrived, Mr. Gentry was greeted with cheers and Mayor Woodward's allusions to him received great applause. Continuing, the Mayor said:

Those that have built up the telephone business, those that are building it up and holding it together today, feel a pride, a conscious pride, in the work and in the associations they have enjoyed during all these long years.

Mayor Woodward concluded with a benediction, saying:

May the good Lord, who looks over all of you when the deliberations of this body are completed carry you safely back to the very distant homes of many of you (as your organization covers the entire continent), and may you find those you love enjoying good health and prosperity.

Mr. Lockwood expressed the appreciation of the Pioneers for the very gracious welcome of the Mayor, and next introduced Mr. J. Epps Brown, first vice-president of the Southern Bell, who welcomed the Pioneers on behalf of that company.

OFFICERS FOR NEXT YEAR.

The convention then disposed of the regular order of business. Under the head of miscellaneous business, a Resolution was adopted requesting the Executive Committee to take into consideration the feasibility of a life membership fee and, if approved, to submit an amendment to the constitution to be acted upon at the next meeting of the society.

The officers chosen for the following year are: President, Mr. Theodore N. Vail; Vice-Presidents, Mr. Thomas D. Lockwood, Mr. Edgar F. Sherwood, Mr. James T. Moran, and Mr. Ben S. Read;

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Treasurer, Mr. George D. Milne. Executive Committee: Mr. Frank A. Pickernell, Mr. Richard T. McComas, Mr. Albert Lincoln Salt, Mr. James Robb, and Mr. Charles H. Wilson.

The meeting then adjourned for luncheon. The ladies were entertained at the Piedmont Driving Club by Mrs. William T. Gentry, while the men were the guests of the various city clubs.

The afternoon session was devoted, as usual, to the reading of papers. The first paper was by Mr. L. B. McFarlane, President of the Bell Telephone Company of Canada. The subject of Mr. McFarlane's paper is "Telephone Pioneering in Canada."

MR. L. B. MCFARLANE'S PAPER.

Mr. McFarlane stated:

> The first telephone contract secured [in Canada] was taken at Hamilton, Ont., the eighteenth of October, 1877, and the line, forming part of the Local District Telegraph call system, was equipped with six telephones and first tested on the twenty-ninth of August, 1877. The press of the day announced that this was the first instance in which more than two telephones had been operated satisfactorily on one circuit.

The first telephone exchange in Canada, and the second in the world, said Mr. McFarlane, was established by the Hamilton District Telegraph Company on its call box circuits. The license to operate was granted on the twenty-eighth of May, 1877, and the first line opened on the eighteenth of October, 1877. The first long distance line test in Canada was said by Mr. McFarlane to have taken place in 1876, when Professor Bell applied to the Dominion Telegraph Company for a permit to test his embryo telephone on its telegraph line between Paris and Brantford. This led to the Dominion Telegraph Company acquiring a license for a period of five years from the eighteenth of February, 1879.

Other valuable and interesting data and many sidelights on the trials and tribulations of the telephone in its early struggles were embodied in Mr. McFarlane's paper. One incident that might be cited in illustration of this was his account of the introduction of the telephone into Newfoundland. Patents were secured in Newfoundland and application made to the local government for a charter to operate. This was opposed by the Anglo-American Telegraph Company, which claimed exclusive rights under a fifty-year telegraph agreement. The matter was finally adjusted by the Bell representative's selling the use of the patent to the Anglo-American Company on a royalty basis. Mr. McFarlane said:

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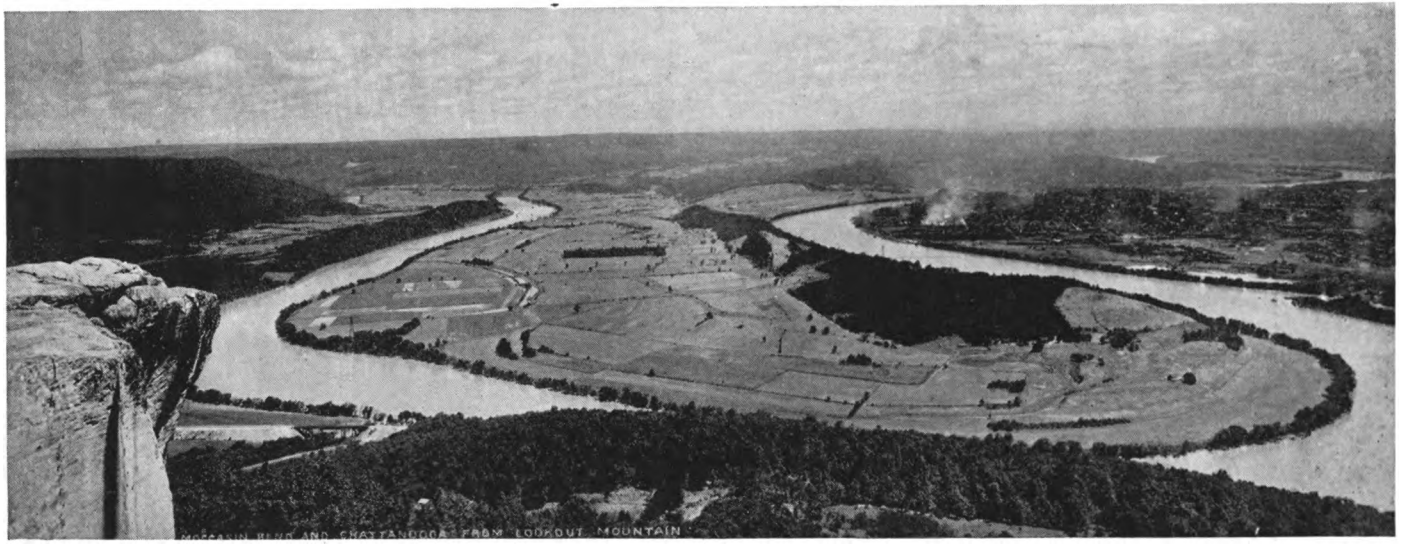

Moccasin Bend at Chattanooga

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When the Manager of the Anglo-American Company was asked why he had opposed the introduction of the telephone, his explanation was unique. He said that from press reports and a chance remark of the Bell Company's representative, he had concluded that we had discovered a way to telephone across the ocean, and he thought this was the secret reason for taking out patents in such an out-of-the-way colony. He had cabled his views and conclusions to the London office and was promptly ordered to oppose our application at all costs.

The next paper was by Mr. F. H. Bethell, who was introduced by Mr. Lockwood as "The first vice-president of the New York Telephone Company, and president of more companies than I care to count on my fingers today."

MR. F. H. BETHELL'S PAPER.

Mr. Bethell's paper was devoted to a brief outline of the Chesapeake & Potomac Telephone Company, with special reference to the District of Columbia and the State of Maryland. "It was in 1877," said Mr. Bethell, "that Mr. George C. Maynard, fellow-Pioneer, and now curator of the Smithsonian Institute at Washington, D. C., began to construct private telephone lines in the District of Columbia." This was the beginning of the telephone business there.

In the District of Columbia.

On September 22, 1877, Mr. Maynard secured exclusive license for the District of Columbia and portions of Maryland adjacent thereto, and in 1879 Mr. Maynard and Mr. William H. Barnard, styling themselves the "National Telephonic Exchange," acquired the right to do a telephone exchange business in the District.

The first central office in Washington was opened December, 1878, with fifty subscribers. "Troubles commenced practically with the opening of the exchange," said Mr. Bethell. It was found that a great increase in the number of calls made the expenses of the company larger than had been anticipated, and so it was proposed to the subscribers that the company would "keep an account of the daily connections made, and give better facilities to those doing the largest business and charge rental for these improved facilities in proportion to the use made by the subscribers of the exchange."

Here, it is the belief of Mr. Bethell, was the measured rate first attempted.

The public, however, did not understand it and rebelled. At a mass meeting of subscribers "it was agreed that each subscriber should on a given day insert the grounding plug into the lightning arrester,

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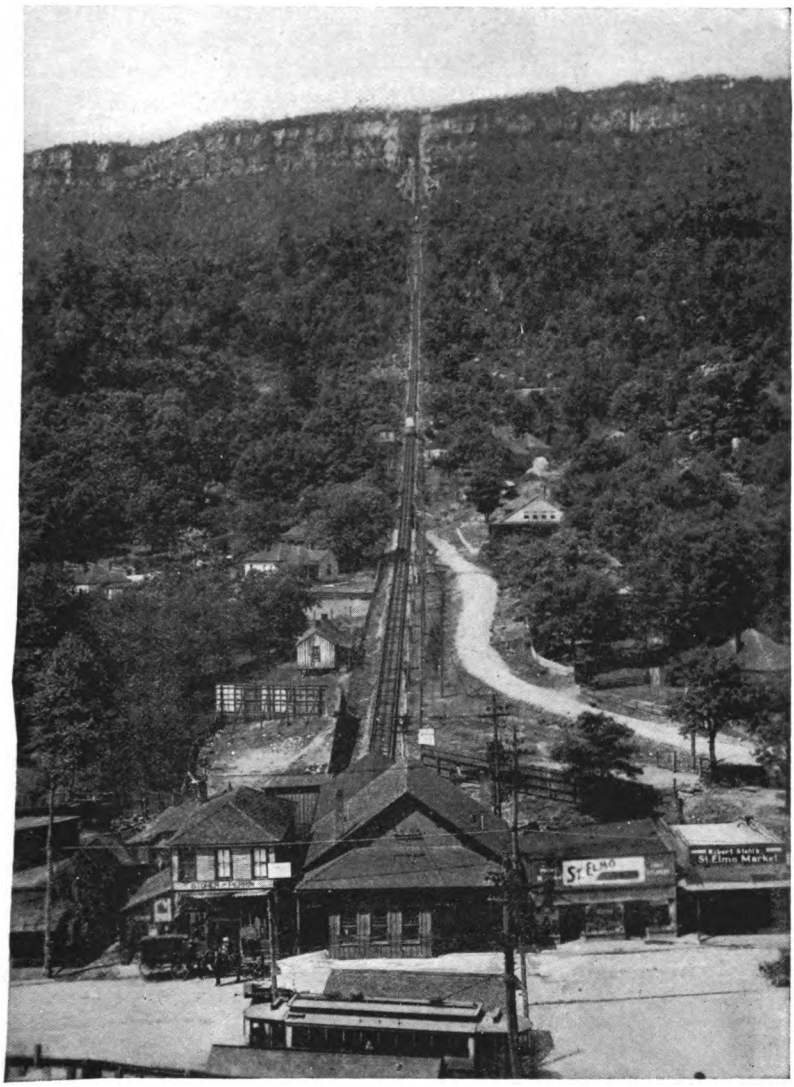

Incline, Lookout Mountain

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with the result that when that day arrived, every telephone in Washington was put out of service. For two full weeks all telephones were quiet along the Potomac, when the management surrendered and the service was, on the subscribers' own terms, resumed."

This was the first successful attempt in settling (amicably) disputes with subscribers' protective associations.

The third matter in which Mr. Bethell claims for Washington the distinction of being first was in the introduction of retrenchment policies. A new president elected in 1882 found the Company unpopular, heavily in debt, and without funds. He reduced the total force from fifty-four persons to twenty-five, and otherwise introduced efficiency and economy as they were known in those days.

Washington was also first in meeting and turning back proposed duplication. The contest between the Western Union Telegraph Company and the Bell interests having been settled, a local company sought the right to do business in Washington in the early '90s, but came to nothing. The Hon. John W. Ross, President, Board of Commissioners, District of Columbia, in a letter to the Hon. James McMillan, Chairman Senate Committee on the District of Columbia, dated January 4, 1896, made a report in which he said:

> The public convenience in the matter of telephone service requires that each owner or lessee of a telephone should be able, through a central office, to communicate with every other owner or lessee of a telephone in a district.
>
> This indispensable condition of a perfect telephone service creates a monopoly by making it impracticable for but one telephone company to occupy the public streets.

President Ross's letter concluded as follows:

> If Congress deems it necessary to have a more extended and efficient service, or a more economical one, than the existing Company furnishes, the Commissioners believe that can better be accomplished by regulating the conditions under which that Company shall operate, than by chartering a new Company.

So far as Mr. Bethell knows, this was the first suggestion of regulation of public utilities, and this is the fifth matter in which Washington has the distinction of being first.

In Baltimore.

The telephone in Baltimore began with its introduction in 1878 when Mr. John Henry C. Watts took out a Bell license covering the right to do a telephone business in and about Baltimore city. The first company was known as the Maryland Telephone Company of Balti-

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more City, and the first telephone exchange was opened on January 1, 1879. In 1883 the Chesapeake & Potomac Telephone Company acquired the exclusive right to conduct a telephone business both in the District of Columbia and in the State of Maryland, and in September of that year found itself swamped with business and had to refuse to accept more in the cities of Baltimore and Washington, until new switchboards could be delivered and installed. This was done the following year. Difficulties of all kinds were encountered, from the placing of telephone lines underground to the exactions imposed by local and national legislation affecting the business in Maryland and the District of Columbia, respectively. But on June 20, 1902, Congress passed an act, "An enabling act, which took the fetters off, thus permitting the unrestricted building of property and extending of service."

With the passage on April 24, 1904, by Congress of what was known as the Repealer Act, the company was freed for the first time in twenty-four years and started with a rush upon a career which, as Mr. Bethell said, "must command the admiration of all of you."

Mr. Bethell traced the problems and growth of the company of which he was formerly general manager and is now president, bringing the account in a most lucid and interesting way up to the present date.

Baltimore Fire.

In his account of the disastrous fire in Baltimore which started on February 7, 1904, Mr. Bethell described the remarkable heroism and work of the operators and all other employes of the company, and said that on the same day that ten companies of fire fighters came from New York to assist in subduing the flames, there also arrived in Baltimore the first shipment of telephone material necessary for the restoration of our service. The service was completely restored before the end of the month and before the last sparks of the fire had died away.

MR. CHARLES E. SCRIBNER'S PAPER.

A paper on "The Genesis of the Multiple Telephone Switchboard," prepared by Mr. Charles E. Scribner, chief engineer of the Western Electric Company, who was unable to be present, was read by Mr. Kendall Weisiger. "The telephone was placed on the market in 1877," wrote Mr. Scribner, "commercial telephone exchange service established January 28, 1878, and the first multiple switchboard installed in January, 1879, in the 'Edison' Telephone Exchange of the American District Telegraph Co., at 118 LaSalle Street, Chicago.

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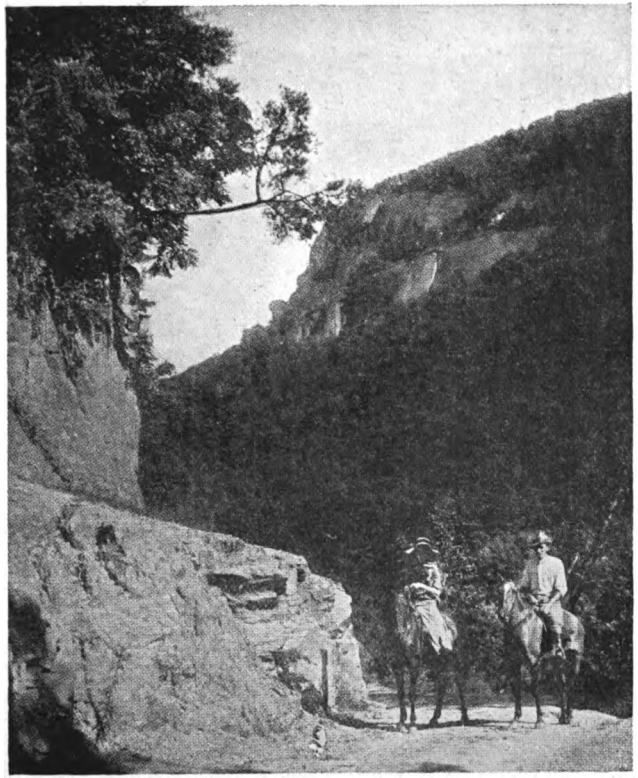

Mountain Drive near Asheville

Capitol at Washington

Capitol at Atlanta

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"Back of these developments there are many stories of inventions and achievements, which, at the time and under the circumstances and the state of the electrical art then existing were, and now are, justly considered marvelous. It is instructive to look back from the present time, and with our advanced practical and scientific training, observe with what swiftness and directness the problems as they presented themselves were worked out and how logical were the steps taken to meet requirements."

Mr. Scribner then gave a short review of the early conditions so as to bring out clearly the situation which demanded the multiple switchboard, with which Mr. Scribner personally had much to do, saw the early apparatus constructed and installed, and witnessed its successful operation.

Mr. Leroy B. Firman, the general manager of the "Edison" Exchange in Chicago, was responsible for the multiple switchboard idea that proved successful. Mr. Scribner said in his paper: "His plan was to provide duplicate switchboards, on each of which all of the telephone lines would appear so that any two lines might be connected together on either of the boards. This was the broad invention of the multiple switchboard, and Mr. Firman is entitled to full credit for pointing out the way to unlimited extension of the telephone exchange systems."

At the suggestion of Mr. E. M. Barton, Mr. Firman later secured a patent which was sold by him to the Western Electric Company.

The tremendous advances which have been made in switchboards since that time were described in detail by Mr. Scribner and his paper doubtless will become one of the most important contributions to the literature of the telephone.

MR. F. A. PICKERNELL'S PAPER.

Mr. Lockwood then read a paper on the introduction of the Composite system, prepared by Mr. F. A. Pickernell, with an interpolation by Mr. Lockwood himself.

Prior to 1890 it had been impossible to use a single wire for telephonic and telegraphic transmission simultaneously, but in this year the American Telephone and Telegraph Company experimented with the Van Rysselberghe System of Simultaneous Telephony and Telegraphy. The experiments were conducted by Mr. Pickernell, who installed

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Missionary Ridge from Gen. Bragg's Headquarters

the new system over A. T. & T. lines between New York and Boston. Very satisfactory results were being obtained, with a promise of great development.

On April 3, 1891, while Mr. Pickernell was in Boston, the main line between Boston and New York was wrecked by a sleet storm. No one in New York was familiar with the Van Rysselberghe System, but a circuit drawing was made and Mr. Pickernell transmitted it by telephone over the newly constructed shore line, which was intact, to Mr. A. S. Williams, his assistant in New York, and the necessary apparatus was arranged for. New York was supplied with equipment and enough for Boston was carried as baggage to that city by Mr. G. L. Betts, chief clerk to Mr. Pickernell, the following day, which was Saturday. That night and Sunday the apparatus was installed on both ends and ready for operation on Monday morning on nineteen lines, one condenser having been found defective. Thus was the situation saved.

As the apparatus became standardized, it was desirable to get a better name, and the honor of selecting it was conferred upon Mr. Lockwood, who chose the appropriate designation, "Composite."

THE BANQUET.

At the conclusion of the reading of the papers, it was announced that the Pioneers would be given a banquet that evening in the Piedmont Hotel by the American Telephone and Telegraph Company, and

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when the meeting adjourned at five o'clock, everyone scurried away to dress for this function, which always is one of the best features of the annual gatherings.

A stage had been constructed on one side of the hall and during the course of the dinner music and entertainment were provided by Bell System talent equal to any high priced cabaret performers. The erstwhile presiding officer of the convention and present toastmaster, Mr. Lockwood, was taken by surprise when called upon to accept a token of appreciation which his loyal and devoted friends wished to present. It consisted of a bale of cotton, and as Mr. Lockwood saw it hoisted to the platform and realized the present market price of one of the staple products of the South, no doubt the high cost of living lost its terrors to him for awhile. But it would be hard to tell what his thoughts were when from out the bale tripped upon light fantastic toes a gauzily clad young lady. What he did was gallantly to seize her around the waist and kiss her ruby lips. Ownership of the bale of cotton vanished, but the possession of that kiss—never!

After dinner speeches were made by Mr. N. T. Guernsey, general counsel American Telephone and Telegraph Company, Hon. Murphey Candler, chairman of the Georgia Railroad Commission, Mr. F. H. Bethell, Mr. L. B. McFarlane, Judge H. E. W. Palmer, and Hon. Clark Howell, editor and owner of the Atlanta *Constitution.*

The banquet and speeches lasted until about midnight when the floor was cleared for dancing which continued almost till breakfast time.

THE SOUVENIR.

The souvenir presented by the American Telephone and Telegraph Company at the banquet possesses unusual intrinsic and sentimental value. It was a medallion nearly three inches in diameter, made from the first metallic copper telephone circuit used on the New York and Boston line, which was built in 1884, and in continuous service until 1916 when a portion was taken down and made into these medallions.

Saturday morning the Pioneers were left to their own devices to enable them to recuperate from the strenuous day and night preceding and to prepare for an old-fashioned Southern Barbecue at the Druid Hills Golf Club scheduled for one o'clock.

An automobile ride in the afternoon wound up the day, and the evening was spent at dinner parties, theaters, and clubs.

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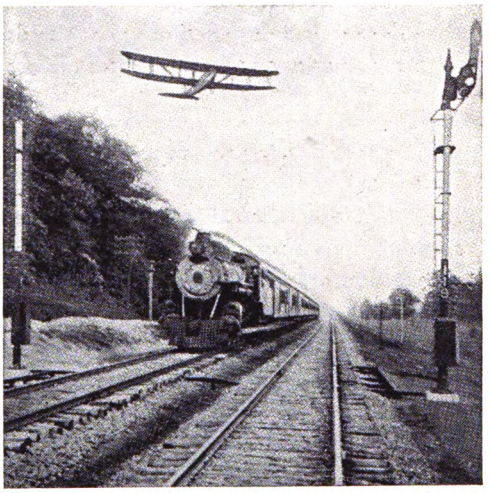
The members of the special train party from New York sought their berths that night and were leaving behind them the scenes and incidents of the 1916 convention before they woke up next morning.

A stop was made at Chattanooga, where the party was met by automobiles and given a ride to the Chickamauga battlefield, Missionary Ridge, Lookout Mountain, and other points of interest. Asheville was reached the next morning where Mike Erskine (he insisted upon being called "Mike"), the local representative of the Southern Bell, acted as cicerone during the stay of the party. Breakfast and luncheon were enjoyed in the midst of the beauties and splendors of the Grove Park Inn. After a sight-seeing trip through the "Land of the Sky" the party left in the early afternoon, arriving in Washington Tuesday morning in time for breakfast. A tour of the city was made until 4 p. m., when the journey back to New York was resumed. The train arrived at the Pennsylvania Terminal on schedule time and the party disbanded for their respective homes.



En Route, Atlanta to Asheville

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In Memoriam

1915

*THOMAS A. DWYER	December 2
*FENNER H. PECKHAM	December 25

1916

EARDLEY CARLTON MICHELL	January 2
WILLIAM F. SHERWOOD	January 23
BELVIDERE BROOKS	February 10
THOMAS DUSENBURY	February 22
HENRY WILLIAM POPE	February 29
CHARLES J. H. WOODBURY	March 20
JAMES WILLIAM GILLESPIE	March 29
JAMES B. WHALEN	April 1
JOHN H. BOEGGEMAN	April 22
ABRAHAM K. THOMPSON	April 24
ENOS M. BARTON	May 3
WILLIAM TELL LA ROCHE	June 8
HOWARD C. ROOT	August 30
WILLIAM RALSTON MOIR	September 13
MICHAEL J. WALL	September 24
PHILLIP P. CREED	October 27
JOHN A. BARRETT	November 9
DANIEL LEET WILSON	November 9
THOMAS A. BOLAND	November 23
MONTAGUE LAWTON	November 24
EUGENE M. WILSON	December 4

* Reported after issue of 1915 Proceedings.

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MEMBERSHIP STATEMENT

1916

Membership January 1, 1916		1343
Members admitted 1916		121
Members Reinstated 1916		2
Total		1466
Resigned	1	
Deceased	21	
Dropped for non-payment of dues	54	76
Membership December 31, 1916		1390
Net Gain in Membership during 1916		47

Pioneers Registered by Years

1875	2
1876	7
1877	40
1878	70
1879	111
1880	79
1881	70
1882	81
1883	86
1884	70
1885	60
1886	73
1887	91
1888	102
1889	114
1890	127
1891	81
1892	67
1893	54
1894	40
1895	39
Total	1464

Resigned

Elizabeth B. Davis, Providence, R. I.

R. H. Starrett, Secretary.

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LIST OF MEMBERS

The dates shown denote the first employment in the telephone service or the first association or interest which led to, or culminated in, the promotion and development of the business.

Honorary Members in Italics

1203	Aaronson, Isaac	1893	New York, N. Y.
574	Abbott, Ellis W.	1884	New Haven, Conn.
94	Abbott, William Rufus	1889	Chicago, Ill.
334	Adee, Daniel M.	1878	New York, N. Y.
845	Adkins, William H.	1878	Atlanta, Ga.
368	Adler, Charles H.	1887	Adrian, Mich.
743	Ahearn, Thomas	1878	Ottawa, Can.
592	Ainsworth, Walter E.	1888	New York, N. Y.
786	Aldrich, Herbert C.	1878	Buffalo, N. Y.
201	Allen, Albert P.	1890	Chicago, Ill.
1440	Allen, Edward H.	1895	Olean, N. Y.
459	Allen, George C.	1888	New York, N. Y.
199	Allen, Harry E.	1884	Dayton, O.
1356	Allen, Hubert A.	1889	Cedar Rapids, Ia.
1165	Allendorf, Augustus	1890	Harvard, Ill.
1199	Allmond, Stevens P.	1881	Philadelphia, Pa.
1118	Anderson, Alfred L.	1888	Omaha, Neb.
651	Anderson, James F.	1885	Newton Mills, N. S.
1335	Anderson, Newton M.	1880	Asheville, N. C.
548	Anderson, Norman	1887	Cleveland, O.
697	Anderson, Peter J.	1885	Spokane, Wash.
1525	Anderson, Wallace R.	1895	New York, N. Y.
337	Annett, Charles F.	1879	Richmond, Cal.
554	Armstrong, George R.	1890	Denver, Colo.
1297	Arnold, Henry L.	1892	Seattle, Wash.
1095	Atwood, Frederick R.	1892	Springfield, Ill.
598	Austin, John A.	1888	Pittsburgh, Pa.
780	Avis, Charles D.	1890	Woodbury, N. J.
741	Ayles, Jesse A.	1887	Somerville, Mass.
825	Aylward, William H.	1890	Brooklyn, N. Y.
943	Babcock, Frank E.	1890	Hempstead, L. I.
1460	Babington, Robert B.	1894	Gastonia, N. C.
406	Bach, Irvin P.	1877	Springfield, Ill.
1029	Bacon, Patrick	1886	Portland, Ore.
967	Badour, William H.	1884	St. Joseph, Mich.
37	Bailey, Thomas B.	1878	Boston, Mass.
279	Baker, Ellis B.	1878	Aberdeen, S. D.
572	Baker, Ellis B., Jr.	1889	New Haven, Conn.

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131	Baker, Hugh C.	1877	Hamilton, Ont.
441	Baker, Kilbourn S.	1882	Marquette, Mich.
505	Baker, Philip K.	1885	Dallas, Tex.
32	Baker, William H.	1886	New York, N. Y.
31	Baldwin, James C. T.	1888	Boston, Mass.
1542	Baney, George C.	1889	Pittsburgh, Pa.
3	Bangs, Charles R.	1888	New York, N. Y.
161	Bangs, Edward H.	1888	Chicago, Ill.
1443	Barchfield, John B.	1879	New York, N. Y.
1342	Barham, Gilbert L.	1890	Butte Co., Cal.
1084	Barker, Charles F.	1889	Somerville, Mass.
1497	Barnard, Arthur W.	1892	Toronto, Ont.
190	Barrett, Albert	1883	Pleasant Hill, Mo.
144	Barrett, Max E.	1883	Chicago, Ill.
1355	Barrows, Charles O.	1894	Chicago, Ill.
1182	Barton, George P.	1878	Los Angeles, Cal.
789	Bates, Henry G.	1884	San Francisco, Cal.
1391	Bauer, Edward F.	1895	Brooklyn, N. Y.
807	Bauer, Harry D.	1888	Mt. Vernon, N. Y.
891	Baumann, Henry J.	1883	Dundee, Ill.
90	Bawsel, Edward E.	1878	Atlanta, Ga.
40	Baxter, Milton S.	1879	Rochester, N. Y.
622	Bayless, George J.	1879	San Francisco, Cal.
795	Beale, George A.	1882	Boston, Mass.
1523	Beard, Charles H.	1893	London, Ont.
937	Beardsley, Theodore H.	1891	New York, N. Y.
1403	Beazley, Mabel M.	1893	Richmond, Va.
882	Bebee, Claude R.	1889	Springfield, Ill.
1008	Beck, Lewis H.	1888	Atlanta, Ga.
573	Beckman, Frederick	1883	Bloomington, Ind.
964	Bedford, Joseph H.	1884	Haverstraw, N. Y.
841	Bedlow, Fred E.	1887	Dallas, Tex.
1378	Beech, Mary F.	1883	Trenton, N. J.
1102	Behrens, Frank H.	1890	Sherborn, Mass.
128	Belcher, John E.	1880	New Haven, Conn.
1	*Bell, Alexander Graham*	1875	Washington, D. C.
1047	Bell, Charles J.	1880	Washington, D. C.
25	Bell, Edward W.	1889	E. Hampton, Conn.
1193	Bell, Horatio	1888	E. Orange, N. J.
1372	Bell, M. Fred.	1882	Fulton, Mo.
59	Bell, William E.	1890	Chicago, Ill.
306	Bellard, Henry W.	1882	Denver, Colo.
1462	Bellinger, Jas. W.	1895	Mt. Vernon, N. Y.

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439	Belt, William B. T.	1889	Omaha, Neb.
119	Bender, Arthur F.	1881	Utica, N. Y.
644	Bender, Philip K.	1886	Pittsburgh, Pa.
514	Benedict, Truman L.	1880	Clarendon, Tex.
482	Benjamin, George M.	1884	New Haven, Conn.
1328	Bennett, James S.	1885	Ely, Nev.
1228	Bennett, Metta R.	1893	New York, N. Y.
1056	Bennett, William H.	1886	Taunton, Mass.
36	Berliner, Emile	1878	Washington, D. C.
742	Berry, Charles W.	1891	New York, N. Y.
481	Berry, Thomas	1889	Milwaukee, Wis.
364	Berry, William J.	1889	Detroit, Mich.
8	Berthold, Victor M.	1883	New York, N. Y.
11	Bethell, Frank H.	1890	New York, N. Y.
20	Bethell, Union N.	1888	New York, N. Y.
547	Betts, G. Lawrence	1888	New York, N. Y.
356	Betty, Werter G.	1880	Cincinnati, O.
1392	Beverlin, Archibald J.	1894	Rock Island, Ill.
1325	Bickley, John	1891	San Francisco, Cal.
619	Biers, Carl S.	1890	Oakland, Cal.
1253	Bigelow, Charles S.	1893	New York, N. Y.
928	Bigler, Eugene W.	1892	Newburgh, N. Y.
429	Binmore, Harriet M.	1884	Chicago, Ill.
564	Black, William H.	1887	Montreal, Can.
1501	Blair-Smith, H.	1894	New York, N. Y.
682	Blake, Adelle W.	1885	Woodbury, N. J.
191	Blake, John T.	1882	Newark, N. J.
1470	Blakeslee, Harry K.	1894	New York, N. Y.
1417	Blondin, Dolphis	1895	Pointe Claire, P. Q.
1375	Blood, Grosvenor T.	1894	East Orange, N. J.
49	Bloodgood, Franklin S.	1880	Owego, N. Y.
323	Boardman, William K.	1888	Nashville, Tenn.
914	Bogue, Richard	1885	Mt. Vernon, N. Y.
1385	Bonds, Edgar T.	1893	South Bend, Ind.
976	Bone, Alfred R.	1887	Chicago, Ill.
1441	Bonney, Robert B.	1895	Denver, Colo.
1053	Booth, Harry J.	1885	Chicago, Ill.
866	Bosworth, Edward T., 2d	1887	Newport, R. I.
1400	Bourke, Edward F.	1895	Brooklyn, N. Y.
34	Boutillette, Henry	1879	Jersey City, N. J.
438	Bowen, Carrie J.	1889	Cleveland, O.
1318	Bowen, Thomas D.	1894	New York, N. Y.
344	Bowker, Frank E.	1882	Coronado, Cal.

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779 Bowman, William R.....1882 New York, N. Y.
736 Bowsher, Samuel .....1890 Chicago, Ill.
150 Boyce, Charles L.....1879 Ann Arbor, Mich.
381 Boyd, William J.....1882 Chicago, Ill.
690 Boyle, John E.....1891 Scranton, Pa.
177 Boynton, Frederick J.....1881 Boston, Mass.
520 Boynton, Henry E. E.....1889 Watertown, Mass.
509 Bradshaw, Thomas N.....1884 New Haven, Conn.
307 Breckenridge, Henry W....1892 Providence, R. I.
1353 Breen, Edward F.....1892 Chicago, Ill.
374 Breese, William .....1891 Philadelphia, Pa.
311 Brennan, Joseph P.....1880 Milwaukee, Wis.
1138 Brett, George J.....1891 Detroit, Mich.
1435 Bridger, James S.....1892 Atlanta, Ga.
793 Bridger, Robert L.....1890 Philadelphia, Pa.
1162 Broderick, John T.....1891 Chicago, Ill.
1194 Brommage, William H.....1891 Alameda, Cal.
531 Brooks, Henry Stanford....1888 New York, N. Y.
1358 Brooks, Morgan .....1884 Urbana, Ill.
751 Brown, Arthur L.....1888 Boston, Mass.
1306 Brown, Bennie .....1883 San José, Cal.
1422 Brown, Charles L.....1895 Philadelphia, Pa.
1433 Brown, Ernest H.....1890 New York, N. Y.
636 Brown, Frederick H.....1890 Warren, Pa.
422 Brown, N. Warren.....1882 New Haven, Conn.
667 Brown, Thomas S.....1885 Galesburg, Ill.
79 Brown, Walter .....1888 New York, N. Y.
1212 Brown, Walter F.....1893 Denver, Colo.
907 Brownell, Carrie L.....1888 Pawtucket, R. I.
95 Brownell, Charles H.....1879 Peru, Ind.
55 Buehler, Martin H.....1882 Baltimore, Md.
315 Bunton, Albert .....1887 Pittsburgh, Pa.
493 Bunton, William W.....1889 Los Angeles, Cal.
661 Burden, William J.....1884 Boston, Mass.
333 Burgess, Edwin M.....1881 Denver, Colo.
372 Burleigh, Charles B.....1879 Boston, Mass.
580 Burns, Joseph .....1890 Boston, Mass.
1079 Burns, Michael J.....1884 Lowell, Mass.
578 Burrows, Robert .....1887 Sault Ste. Marie, Ont.
263 Burrows, William L.....1881 Detroit, Mich.
1054 Burt, Alonzo .....1891 Chicago, Ill.
1399 Burton, Paul G.....1894 Baltimore, Md.
230 Bush, William H.....1880 Westfield, N. J.

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1349	Butler, Edward	1892	St. Catharines, Ont.
30	Butler, John K.	1878	St. Petersburg, Fla.
373	Butler, Walter B.	1880	Albany, N. Y.
683	Butterick, Robert P.	1884	Salem, Mass.
401	Buttrick, Frederick A.	1879	Boston, Mass.
1510	Byrne, George W.	1895	New York, N. Y.
427	Byrnes, Joseph	1890	St. Louis, Mo.
28	Cahill, John H.	1879	New York, N. Y.
237	Caldwell, James E.	1885	Nashville, Tenn.
1288	Call, Geo. L.	1889	Newton Highlands, Mass.
556	Cameron, Alexander	1879	New York, N. Y.
100	Campbell, Arthur S.	1885	New York, N. Y.
773	Campion, John J.	1887	New York, N. Y.
4	Candee, Willard L.	1877	New York, N. Y.
539	Candor, Addison	1891	Williamsport, Pa.
260	Canfield, James F.	1885	Brooklyn, N. Y.
695	Cannon, Francis A.	1888	Denver, Colo.
1346	Capito, John T.	1889	Los Angeles, Cal.
1376	Carah, Hedley V.	1894	Boston, Mass.
703	Carlton, John A.	1880	Albany, N. Y.
1100	Carncross, Florence	1888	Albany, N. Y.
236	Carney, Martin J.	1879	Chicago, Ill.
603	Carpenter, Hugh S.	1884	Oakland, Cal.
88	Carpenter, Isaac B.	1882	Providence, R. I.
1108	Carpenter, William M.	1883	Chicago, Ill.
367	Carr, Fred A.	1887	White River Junc., Vt.
528	Carrigan, George H.	1879	Brooklyn, N. Y.
1266	Carroll, Bernard C.	1884	San Francisco, Cal.
1533	Carroll, E. Janie	1886	Quebec, Can.
1535	Carson, Thomas H.	1893	Chicago, Ill.
1361	Carter, Albert E.	1895	Dorchester, Mass.
894	Carter, John J.	1888	Meriden, Conn.
612	Carter, Otis H.	1884	Milwaukee, Wis.
116	Carty, John J.	1879	New York, N. Y.
885	Caverly, James	1889	New York, N. Y.
1439	Cerney, Albert	1890	Cicero, Ill.
671	Chambers, James A.	1881	Galveston, Tex.
371	Cheney, Fred G.	1889	Lawrence, Mass.
714	Cheney, Rozalind A.	1889	Buffalo, N. Y.
1036	Cherry, John W.	1883	Devils Lake, Mich.
77	Chester, William F.	1878	New York, N. Y.
961	Childs, Frederick W.	1888	Brattleboro, Vt.
347	Childs, William A.	1877	Riverside, Cal.

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1498	Chipley, Hunt	1895	Atlanta, Ga.
939	Chisholm, Angus	1888	Peekskill, N. Y.
704	Christian, Grant S	1885	Lansdale, Pa.
879	Christian, Harry C	1883	Newport, R. I.
158	Christie, James W	1884	Omaha, Neb.
929	Ciani, Alfonso A	1887	New York, N. Y.
278	Clark, Emory A	1882	Omaha, Neb.
692	Clark, Francis R	1879	W. Medford, Mass.
944	Clark, Ichabod E	1881	New York, N. Y.
46	Clarke, Edwin N	1880	New Haven, Conn.
1530	Clarke, Wm. J	1883	Toronto, Ont.
1303	Clausen, Henry P	1893	New York, N. Y.
456	Clausen, William H	1879	Boston, Mass.
989	Cleaver, Frederick D	1888	Des Moines, Ia.
1153	Cleveland, Ulysses F	1892	Downers Grove, Ill.
1071	Clifford, E. Preston	1892	New York, N. Y.
762	Clifford, John M	1889	Manistee, Mich.
272	Cline, John H	1889	Columbus, O.
172	Cline, Robert	1888	Chicago, Ill.
1225	Cloutman, Edwin S	1889	Dorchester, Mass.
726	Cochran, Roy B	1884	Hutchinson, Kan.
1200	Cohen, Phillip	1890	New York, N. Y.
359	Cole, Charles D. M	1889	New York, N. Y.
1045	Cole, Minnie E	1884	Atlanta, Ga.
1136	Collins, Catherine G	1887	Buffalo, N. Y.
360	Collins, Christopher	1888	Marietta, O.
1125	Collins, Dennis J	1886	Point Pleasant, W. Va.
513	Collins, Dennis L	1882	New York, N. Y.
627	Collins, Michael S	1878	Philadelphia, Pa.
501	Collmus, Samuel L	1886	Baltimore, Md.
330	Conn, Frank W	1879	Brooklyn, N. Y.
1005	Connolly, John F	1880	W. Somerville, Mass.
675	Conoley, Charles H	1889	Atlanta, Ga.
1172	Considine, Ella	1887	Canaan, Conn.
1502	Conway, Geo. W	1895	Boston, Mass.
696	Cook, Clifford A	1889	St. Joseph, Mo.
913	Cook, Edward B	1890	New York, N. Y.
195	Cook, Frank B	1879	Chicago, Ill.
444	Cook, Marvin J	1877	Boston, Mass.
1233	Cook, Walter	1886	Springfield, O.
640	Cooper, Margaret	1883	Indianapolis, Ind.
284	Corcoran, John H	1887	Portland, Ore.
1294	Corcoran, Timothy J	1892	San Francisco, Cal.

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283	Cornish, Thomas E.	1877	Philadelphia, Pa.
152	Corrigan, Edward	1883	Baltimore, Md.
228	Cottrill, Edwin B.	1886	Buffalo, N. Y.
255	Cox, David C.	1889	Syracuse, N. Y.
1426	Cranmer, Arthur B.	1895	Paterson, N. J.
720	Crapo, Charles A.	1890	Denver, Colo.
1113	Crawford, Wilmer D.	1891	Tiffin, O.
69	Crenshaw, Augustus P.	1878	Washington, D. C.
192	Crews, J. William	1883	Richmond, Va.
1352	Croll, Howard H.	1894	Greeley, Colo.
1549	Crosman, J. Heron, Jr.	1894	Philadelphia, Pa.
1244	Crowell, William F.	1892	Belmont, Mass.
835	Culbertson, James E.	1888	Cincinnati, O.
262	Culbertson, John N.	1878	North East, Pa.
1075	Cunningham, James	1891	Riverton, N. J.
431	Cunningham, John	1889	Buffalo, N. Y.
583	Curran, James	1881	Portland, Ore.
643	Currier, Mark W.	1888	Dorchester, Mass.
1027	Curtis, Annie Nyhan	1886	San Francisco, Cal.
1429	Cusack, James J.	1892	Yonkers, N. Y.
1333	Cutler, Geo. T.	1889	Burlington, Vt.
226	Cutts, Albert E.	1890	New York, N. Y.
891	Dabb, Earl T.	1890	New York, N. Y.
66	Daboll, Frank G.	1879	Springfield, Mass.
1347	Da Gue, Allen E.	1894	Madison, Ill.
798	Dailey, Jeremiah D.	1888	St. Paul, Minn.
1285	Daly, Francis I.	1894	Philadelphia, Pa.
892	Daniels, Samuel W.	1888	Brooklyn, N. Y.
570	Dauphin, Henri A.	1880	Quebec, Can.
1085	Davenport, Mrs. Lola M.	1885	New York, N. Y.
1030	Davern, John	1887	Brooklyn, N. Y.
680	Davis, Fred G.	1891	Brooklyn, N. Y.
843	Davis, John	1877	Altoona, Pa.
587	Davis, Theodore E.	1888	Portland, Me.
375	Dawson, William E.	1887	Detroit, Mich.
632	Dean, Albert E.	1887	Tacoma, Wash.
1492	Dean, Richard	1895	New Orleans, La.
1490	Deas, Arthur W.	1895	New York, N. Y.
436	Delany, George W.	1878	St. Louis, Mo.
707	De Lany, William W.	1887	Atlanta, Ga.
1363	Delehanty, William	1878	San Francisco, Cal.
1437	Demorest, Charles E.	1891	Sioux City, Ia.
748	Dennis, Charles E.	1890	Brooklyn, N. Y.

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1147	De Pue, Carl L.	1888	Maywood, Ill.
867	Depuy, Augustus B.	1883	Collingswood, N. J.
908	Desmond, John	1883	Paterson, N. J.
1305	Devers, Henry M.	1889	San Francisco, Cal.
103	Devlin, Mamie	1889	New York, N. Y.
151	Devonshire, Robert W.	1877	Boston, Mass.
167	Dickinson, Charles C.	1882	Belfast, Me.
1548	Dickinson, Walter O.	1892	New York, N. Y.
378	Dittmer, Adolph M.	1888	Atlantic, Mass.
577	Doan, Fremont W.	1891	Peterboro, Ont.
855	Dockety, James A.	1887	Wilmington, Del.
585	Dodd, Amzi	1886	New York, N. Y.
489	Donaldson, William	1890	Chicago, Ill.
1110	Donnelly, James J.	1886	Brooklyn, N. Y.
808	Donnelly, John H.	1880	Newark, N. J.
1518	Donovan, Alfred D.	1883	Oswego, N. Y.
379	Donovan, Bernard T.	1891	Chicago, Ill.
384	Donohoe, Francis E.	1882	New York, N. Y.
92	Doolittle, Charles B.	1878	New Haven, Conn.
300	Doolittle, Thomas B.	1877	Branford, Conn.
656	Doragh, Robert	1891	Olympia, Wash.
747	Dorsey, Franklin O.	1888	Pittsburgh, Pa.
253	Dow, Charles W.	1878	Norwich, Conn.
1301	Downs, John P.	1893	San Francisco, Cal.
19	Doyle, James	1885	New York, N. Y.
917	Drake, David E.	1877	New York, N. Y.
536	Drake, Flemon	1882	San Francisco, Cal.
117	Dresser, George H.	1881	Boston, Mass.
895	Drew, Edward H.	1877	Portsmouth, N. H.
761	Drew, Elbert G.	1890	Chicago, Ill.
290	Drew, Frank M.	1881	Boston, Mass.
1457	Driscoll, Edward A.	1882	New York, N. Y.
1180	Driscoll, John P.	1891	Chicago, Ill.
204	Driscoll, Margaret M.	1892	San Francisco, Cal.
76	Driver, William R.	1880	Boston, Mass.
1224	Driver, William R., Jr.	1893	Boston, Mass.
1509	Du Bois, Arthur L.	1890	New York, N. Y.
1076	Du Bois, Charles G.	1891	New York, N. Y.
242	Duffy, George	1885	Chicago, Ill.
589	Duggan, Leonard F.	1890	Wichita, Kan.
1522	Duggan, Mary J.	1888	Hamilton, Ont.
980	Dunn, Leo M.	1886	Pittsburgh, Pa.
1195	Dunphy, James P.	1888	Seattle, Wash.

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453	Dunstan, Kenneth J.	1877	Toronto, Ont.
15	Durant, Charles	1888	New York, N. Y.
294	Dwyer, Thomas J.	1881	Minneapolis, Minn.
224	Eanes, Henry Oscar	1880	Danville, Va.
1320	Eaton, Frederic W.	1893	San Francisco, Cal.
1531	Eaton, James B.	1887	Toronto, Ont.
147	Eddy, William B.	1879	Albany, N. Y.
830	Edwards, Daniel A.	1880	Washington, D. C.
366	Edwards, J. S. Glen	1879	Johnstown, N. Y.
175	Egleston, Melville	1885	New York, N. Y.
1291	Eldred, Lewis L.	1893	New York, N. Y.
58	Eldridge, Frank R.	1882	Providence, R. I.
1444	Elliott, Geo. J.	1893	Philadelphia, Pa.
711	Ellis, Frank Bruce	1890	New York, N. Y.
923	Ellis, Frank B.	1886	New York, N. Y.
376	Ellis, William P.	1884	Pottstown, Pa.
238	Elstun, Volney	1888	Cincinnati, O.
645	Emery, Howard B.	1889	Boston, Mass.
844	Emmons, William W.	1891	Newark, N. J.
1250	Enders, John C.	1893	New York, N. Y.
898	England, Lemanuel G.	1889	Pontiac, Ill.
1310	Engstrom, Wm	1888	Chicago, Ill.
729	Ennis, William P.	1883	New York, N. Y.
1476	Erskine, Michael A.	1895	Asheville, N. C.
316	Esten, William E.	1879	Providence, R. I.
594	Evans, Charles M.	1883	Memphis, Tenn.
812	Evans, Price	1889	Detroit, Mich.
164	Evans, William R.	1878	Toronto, Ont.
123	Everett, Edward H.	1889	New Haven, Conn.
1111	Evick, Cora B.	1892	Chicago, Ill.
1087	Facey, Lydia A.	1881	Portland, Me.
1480	Fagan, Thos. E.	1891	Atlanta, Ga.
297	Failing, Charles C.	1883	Port Huron, Mich.
1475	Fair, Annie	1888	London, Ont.
1021	Fairbanks, Wells C.	1884	Auburn, N. Y.
1329	Farber, William J.	1879	W. Montreal, Can.
591	Farley, Walter H.	1888	Ottawa, Can.
537	Farnsworth, Joseph E.	1885	Dallas, Tex.
1424	Farquhar, Wm. J.	1893	New York, N. Y.
517	Featherston, John T.	1879	Louisville, Ky.
977	Feile, Baptist	1889	Brooklyn, N. Y.
65	Ferguson, Roderick A.	1887	Hamilton, Bermuda
1357	Ferris, William A.	1894	Montclair, N. J.

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759	Ferry, John M.	1886	New York, N. Y.
788	Ficarra, Angelo	1886	Brooklyn, N. Y.
202	Field, Edward B.	1880	Denver, Colo.
188	Field, Edward B., Jr.	1887	Denver, Colo.
725	Finley, Charles A.	1892	New York, N. Y.
82	Fish, Frederick P.	1881	Boston, Mass.
1064	Fisher, Edward T.	1888	Englewood, N. J.
293	Fitzpatrick, Thomas P.	1879	Brooklyn, N. Y.
115	Fitzsimmons, James J.	1890	Albany, N. Y.
291	Flanagan, James H.	1882	Boston, Mass.
1028	Flanagan, Simon	1887	San Francisco, Cal.
722	Fleming, Harry J.	1892	Oakland, Cal.
652	Flynn, John J.	1887	Berkeley, Cal.
1319	Foley, John J.	1892	San Francisco, Cal.
1220	Foraker, Burch	1893	New York, N. Y.
1367	Forbes, Charles W.	1887	Sonora, Mex.
157	Forbes, Frederick A.	1882	Detroit, Mich.
1149	Ford, Arthur H.	1892	Chicago, Ill.
606	Ford, Edward C.	1882	New London, Conn.
402	Ford, William A.	1884	Brooklyn, N. Y.
883	Forger, Hugo	1886	New York, N. Y.
212	Foster, George W.	1882	Dallas, Tex.
446	Foster, W. J.	1878	New York, N. Y.
1026	Foulkes, Frederick C.	1891	Newark, N. J.
1232	Fraher, James	1891	Waukegan, Ill.
1083	Francis, Albert G.	1880	Chicago, Ill.
596	Fraser, Clark K.	1889	Buffalo, N. Y.
1063	Fraser, William G.	1883	Petrolia, Ont.
197	Freeman, Mrs. Anna V.	1883	Woodbridge, N. J.
331	Freeman, Thomas E.	1878	Chicago, Ill.
343	Freeman, Walter H.	1890	New York, N. Y.
342	French, Caleb Jay	1884	Boston, Mass.
1364	French, George C.	1895	Milwaukee, Wis.
1192	French, William H.	1880	Springfield, Mass.
9	Fuller, Charles H.	1886	New York, N. Y.
355	Fullerton, Darwin P.	1889	San Francisco, Cal.
1459	Fyler, Emory T.	1889	Seattle, Wash.
1526	Gaffney, Wm. F.	1895	Des Moines, Ia.
221	Gallagher, Andrew C.	1879	Oshkosh, Wis.
737	Galletly, William	1890	Pawtucket, R. I.
649	Gallus, George W.	1879	Collingsdale, Pa.
639	Gannon, Mary J.	1883	Buffalo, N. Y.
391	Gardner, Charles E.	1879	Detroit, Mich.

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959 Garrett, Alva A.....1890 Little Rock, Ark.
1436 Garvey, James .....1882 New York, N. Y.
217 Garvey, William J.....1880 Elmira, N. Y.
543 Gately, Joseph A.....1889 Boston, Mass.
705 Gates, Charles A.....1885 Dallas, Tex.
734 Gaudue, William L.....1889 Brooklyn, N. Y.
819 Gaynor, James L.....1887 Scranton, Pa.
1148 Gedney, Arthur L.....1887 Chicago, Ill.
963 Gemmill, Robert B.....1889 Abilene, Kan.
231 Gentry, William T.....1879 Atlanta, Ga.
1187 George, Mrs. A. J. L.....1882 Denver, Colo.
1456 George, Frank W.....1895 Aberdeen, S. D.
5 Ghegan, John J.....1877 New York, N. Y.
176 Gibbs, Daniel R.....1888 Philadelphia, Pa.
1486 Gibbs, W. H.....1893 Atlanta, Ga.
178 Gibson, James W.....1882 Atlanta, Ga.
738 Gibson, William A.....1888 New York, N. Y.
1090 Gilbert, John J.....1890 New York, N. Y.
1267 Gilkyson, John W.....1887 San Francisco, Cal.
1447 Gilman, F. L.....1895 New York, N. Y.
1390 Glass, Louis .....1891 San Francisco, Cal.
267 Glidden, Charles J.....1877 Boston, Mass.
799 Goldsberry, Edwin B.....1882 Red Oak, Ia
679 Good, William G.....1878 Brooklyn, N. Y.
791 Goodloe, Steven B.....1886 Brooklyn, N. Y.
1023 Graff, J. V.....1879 Buffalo, N. Y.
1230 Graham, William C.....1893 Newark, N. J.
72 Grant, Charles A.....1883 Boston, Mass.
524 Gray, Edward P.....1890 Racine, Wis.
893 Gray, Ruel H.....1889 Norwich, Conn.
522 Green, George L.....1890 New York, N. Y.
1086 Greenslade, Augusta .....1892 Bayonne, N. J.
559 Greer, Samuel Miller.....1890 Baltimore, Md.
154 Griffin, Frank W.....1887 Philadelphia, Pa.
1370 Gruben, Gus E.....1894 Council Bluffs, Ia.
745 Gruber, Adolph A.....1887 Austin, Tex.
43 Gurnee, Eugene A.....1885 New York, N. Y.
768 Gurnee, William T.....1889 New York, N. Y.
1044 Haddock, Morton W.....1892 Waban, Mass.
1141 Hadley, William J.....1892 Quincy, Mass.
1209 Hadlock, Charles H.....1892 New York, N. Y.
1237 Haggerty, Elizabeth T.....1893 New York, N. Y.
1006 Haggerty, Mary G.....1886 New York, N. Y.

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541	Hall, Charles E.	1884	Omaha, Neb.
1170	Hall, Mrs. Charles E.	1886	Omaha, Neb.
1554	Hall, David F.	1896	Chicago, Ill.
265	Hall, George G.	1889	Louisville, Ky.
909	Hall, George H., Jr.	1891	Dorchester, Mass.
1544	Hall, Ransom C.	1895	Cincinnati, O.
1043	Hall, Robert D.	1890	Denver, Colo.
399	Halligan, James E.	1880	Quincy, Ill.
1315	Halsey, Theo. V.	1890	San Francisco, Cal.
504	Halsted, Louis F.	1891	New York, N. Y.
1089	Hamar, James L.	1892	New York, N. Y.
1412	Hamilton, Robert	1895	London, Ont.
478	Hamlin, Philip	1889	Spokane, Wash.
1337	Hampton, Chas. J.	1893	Berkeley, Cal.
89	Hanchett, William D.	1879	Watertown, N. Y.
997	Hanley, Frank J.	1886	Newark, N. J.
1351	Hanns, Mary E.	1888	Rome, N. Y.
1395	Hanratty, William D.	1892	Philadelphia, Pa.
1519	Hansen, John P.	1891	Chicago, Ill.
1474	Hardcastle, Kendrick C.	1895	Nashville, Tenn.
1463	Hare, Arthur M.	1885	Tillsonburg, Ont.
1317	Harper, James	1894	Cincinnati, O.
165	Harrington, Frank W.	1876	New York, N. Y.
1551	Harris, Geo. C.	1895	Atlantic City, N. J.
1061	Harris, Pincus	1892	New York, N. Y.
460	Harrison, Abner P.	1887	Oakland, Cal.
1309	Harrison, Alex. M.	1893	New York, N. Y.
1311	Harrison, Edw. M.	1892	New York, N. Y.
553	Hart, George	1889	New York, N. Y.
919	Hart, William O.	1883	Hope, Ark.
1276	Hartery, Mary A.	1888	San Francisco, Cal.
942	Hartman, Peter J.	1884	New York, N. Y.
1078	Hartranft, William C.	1889	Pottstown, Pa.
1122	Hatch, Austin L.	1883	Spokane, Wash.
193	Hathaway, John F.	1888	New York, N. Y.
1241	Hawley, William P.	1893	Bluefield, W. Va.
1507	Hawn, Charles W.	1893	Indianapolis, Ind.
962	Hayden, Michael J.	1882	Brooklyn, N. Y.
519	Hayek, Jacob J.	1892	St. Paul, Minn.
52	Hayes, Hammond V.	1885	Boston, Mass.
1354	Hayes, Matthew L.	1890	Chicago, Ill.
1387	Hayes, William H.	1885	Halifax, N. S.
617	Haynes, Albert S.	1890	Haverhill, Mass.

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508	Hays, William S.	1881	Columbus, O.
985	Hazard, Rowland G.	1879	Peace Dale, R. I.
677	Heep, William G.	1885	New York, N. Y.
1066	Heidel, Richard A.	1887	Williams Bridge, N. Y.
811	Hekking, John G.	1884	Garfield, N. J.
411	Helsher, Louis H.	1877	St. Louis, Mo.
1114	Hemphill, Mattie B.	1887	Brooklyn, N. Y.
1001	Henderson, John F.	1883	Ft. Worth, Tex.
1299	Henderson, Roger S.	1893	Philadelphia, Pa.
68	Hennigh, Minnie M. E.	1882	Carlisle, Pa.
765	Hertzler, Elmer	1891	Philadelphia, Pa.
289	Herzig, Charles H.	1882	Boston, Mass.
1343	Hess, Fred M.	1893	Bishop, Cal.
525	Heyden, Oscar R.	1889	Milwaukee, Wis.
127	Hibbard, Angus S.	1881	Chicago, Ill.
998	Hibner, Frank G.	1879	New York, N. Y.
931	Hickey, George W.	1881	Brooklyn, N. Y.
794	Higgins, Henry A.	1886	Brooklyn, N. Y.
247	Higgins, Pedro Kerr	1881	St. Louis, Mo.
1179	Hild, Otto G.	1888	Chicago, Ill.
497	Hill, Horace F.	1890	Chicago, Ill.
648	Hillhouse, Albert S.	1886	Indianapolis, Ind.
1284	Hillman, Walter	1894	New York, N. Y.
1411	Hindle, John T.	1884	Philadelphia, Pa.
1366	Hirschman, Oscar H.	1888	Chicago, Ill.
1491	Hiss, W. J.	1895	New York, N. Y.
633	Hobbins, James W.	1889	Appleton, Wis.
1257	Hobbins, William D.	1890	Milwaukee, Wis.
281	Hobbs, John W.	1880	Springfield, Ill.
1208	Hodges, Etta J.	1881	Dorchester, Mass.
490	Hoffman, H. Louis	1888	St. Louis, Mo.
350	Hoffman, Sue E.	1884	Cairo, Ill.
823	Holbrook, Orrin J.	1884	Chicago, Ill.
336	Holcomb, Alfred E.	1890	New York, N. Y.
1177	Holden, George F.	1891	Chicago, Ill.
727	Holden, Rockwell L.	1883	Chicago, Ill.
839	Holder, John P.	1889	Brooklyn, N. Y.
1541	Holditch, Charles J.	1895	Atlanta, Ga.
1160	Holdsworth, Frederick J.	1892	Chicago, Ill.
451	Holland, George P.	1883	Detroit, Mich.
1468	Holliday, Lawrence M.	1895	Omaha, Neb.
1269	Holliday, Oran W.	1888	Omaha, Neb.
498	Holm, Louis	1886	Brooklyn, N. Y.

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529 HOLMES, EDWARD S.....1890 Chicago, Ill.
23 HOLMES, EDWIN T.....1877 New York, N. Y.
984 HOLMES, OLIVER H.....1892 Omaha, Neb.
1099 HOLTZER, CHARLES W.....1879 Brookline, Mass.
1473 HOLZMANN, ANDREW .....1892 Brooklyn, N. Y.
924 HONEYMAN, PAUL D.....1891 New York, N. Y.
624 HONKE, JOHN A.....1879 Sharon Hill, Pa.
1434 HONS, JOHN H.....1895 Philadelphia, Pa.
694 HOOPES, HERBERT B.....1886 Philadelphia, Pa.
1277 HOOPES, MARY E. B.....1879 Philadelphia, Pa.
1042 HOPF, GEORGE .....1886 Chicago, Ill.
629 HOPKINS, CHARLES B.....1883 Seattle, Wash.
1185 HOPKINS, WILLIAM O.....1877 Chicago, Ill.
168 HOPPINS, WALDRON .....1888 New York, N. Y.
1022 HOUGH, JOSEPH S.....1891 New York, N. Y.
951 HOULIHAN, EDWARD J.....1890 Albany, N. Y.
222 HOUSTON, FRANCIS A.....1885 Boston, Mass.
510 HOUSTON, NEAL M.....1884 New York, N. Y.
1418 HOWARD, BASIL F.....1895 Denver, Colo.
60 HOWARD, CHARLES T.....1880 Providence, R. I.
1350 HOWARD JENNIE I.....1891 Jamestown, N. Y.
159 HOWARTH, SAMUEL B.....1881 St. Paul, Minn.
321 HOWARTH, WALTER S.....1884 Utica, N. Y.
1494 HOWLEY, CHARLES W.....1894 Brooklyn, N. Y.
1382 HOXSEY, J. M. B.....1893 Atlanta, Ga.
274 HOYT, GRANVILLE W.....1879 Danbury, Conn.
196 HUBBARD, CHARLES EUSTIS....1877 Boston, Mass.
1126 HUBBARD, WILLIAM .....1878 Elgin, Ill.
129 HUEBNER, SAMUEL T.....1882 Burlington, Ia.
900 HUGHES, NICHOLAS H.....1878 New York, N. Y.
1070 HUGHES, WILLIAM .....1891 Chicago, Ill.
414 HUIDEKOPER, HENRY S.....1886 Philadelphia, Pa.
511 HUME, FOSTER .....1890 Memphis, Tenn.
345 HUME, LELAND .....1885 Nashville, Tenn.
790 HUMSTONE, WALTER C.....1879 Brooklyn, N. Y.
658 HUNT, EDWARD J.....1881 Norwich, Conn.
471 HUNT, WILLIAM F.....1882 Springfield, Mass.
1068 HUNTER, JOHN A.....1890 Brooklyn, N. Y.
1504 HUNTER, WILLIAM P.....1892 Atlanta, Ga.
42 HUNTINGTON, WILLIAM E....1882 New York, N. Y.
1336 HURLEY, CHAS. J.....1891 Philadelphia, Pa.
487 HURSON, PATRICK E.....1889 Detroit, Mich.
730 HUSSEY, EDWARD A.....1887 New York, N. Y.

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254	Hutchins, Melvin	1882	Springfield, Mass.
1252	Hutchinson, George H.	1889	Chicago, Ill.
713	Hutt, William C.	1883	Atlanta, Ga.
241	Hutton, Noah H.	1885	Richmond, Ind.
332	Hyatt, A. P.	1889	Chicago, Ill.
443	Hyatt, Margaret M.	1883	Oak Park, Ill.
305	Hyde, William H.	1883	Milwaukee, Wis.
91	Hyland, John F.	1878	Quincy, Mass.
575	Iddings, Frederick T.	1884	Baltimore, Md.
136	Ingalls, S. Curtis	1886	New York, N. Y.
296	Ingram, Bessie	1889	Columbus, Ga.
666	Ingram, Thomas L.	1881	Atlanta, Ga.
1386	Insull, Samuel	1879	Chicago, Ill.
1163	Ireland, George W.	1892	Berwyn, Ill.
249	Jackson, Berta C.	1890	New York, N. Y.
163	Jackson, William A.	1877	Detroit, Mich.
670	Jacobs, Asa F.	1885	Portland, Me.
185	Jacobs, Peter O.	1890	Buffalo, N. Y.
715	Jacobs, William J. C.	1883	Waynesboro, Pa.
1239	Jamison, John A., Jr.	1893	Albany, N. Y.
51	Janke, Charles A.	1880	Camden, N. J.
1150	Jarvis, Cameron D.	1882	Winthrop, Mass.
1040	Jeavons, Alfred E.	1879	Olympia, Wash.
754	Jenkins, Fannie M.	1887	Port Richmond, N. Y.
1173	Jenks, Leslie H.	1891	Carthage, N. Y.
1197	Jennings, Percy H.	1893	Toronto, Ont.
1383	Jensen, Christian L.	1894	Hot Springs, S. D.
1222	Jensen, Jens P.	1892	San Jose, Cal.
1453	Jester, Edward	1894	Corona, N. Y.
261	Johnson, August	1884	Brooklyn, N. Y.
162	Johnson, William W.	1884	Jefferson City, Mo.
840	Johnston, George O.	1886	Dormont, Pa.
1446	Johnston, John K.	1895	Indianapolis, Ind.
595	Johnston, Robert E.	1891	Pittsburgh, Pa.
965	Jones, George T.	1891	Evanston, Ill.
1322	Jones, Joseph	1894	Montreal, Can.
104	Jones, Minnie A.	1887	Orange, N. J.
1280	Jones, Robert F.	1884	Montreal, Can.
744	Jordan, Silas P.	1881	Lyons, Ia.
960	Joyce, Addie	1889	Oswego, N. Y.
702	Joyce, Martin J.	1877	Oswego, N. Y.
1483	Joynes, Adrian L.	1890	Savannah, Ga.
796	Judson, Clarence H.	1879	San Francisco, Cal.

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700	Judson, Fred E.	1879	Chicago, Ill.
6	Kaiser, Barney A.	1885	New York, N. Y.
831	Kane, John	1886	Paterson, N. J.
772	Kavanagh, William H.	1885	Everett, Mass.
276	Kearns, John	1879	San Francisco, Cal.
72	Keenan, William J.	1878	Boston, Mass.
1359	Kehnroth, Charles H.	1894	Chicago, Ill.
534	Keim, Edward T.	1879	Denver, Colo.
326	Kelleher, Charles F.	1878	Mineola, N. Y.
98	Keller, Carl T.	1890	Brookline, Mass.
96	Keller, Jasper N.	1879	Boston, Mass.
978	Kelley, Peter J.	1887	New York, N. Y.
1271	Kennedy, Celia M.	1891	Albany, N. Y.
26	Kennedy, James A.	1884	New York, N. Y.
653	Kennedy, William J.	1886	San Francisco, Cal.
354	Kenyon, Herbert D.	1884	Pawtucket, R. I.
1505	Kerksis, John	1887	Atlanta, Ga.
586	Kesterton, Wall H.	1888	New York, N. Y.
1397	Ketterman, William E.	1891	Boulder, Colo.
479	Keys, Betty E.	1882	Alexandria, Va.
582	Keyser, Howard	1879	San Francisco, Cal.
1012	Kilbourne, Alfred L.	1881	Brooklyn, N. Y.
466	Kilday, John C.	1884	Boston, Mass.
1556	Killam, Leslie	1896	Milwaukee, Wis.
420	Killian, Thomas J.	1888	Boston, Mass.
1406	King, Mark J.	1895	New York, N. Y.
21	Kingsbury, Nathan C.	1883	New York, N. Y.
182	Kinnard, Leonard H.	1888	Philadelphia, Pa.
1331	Kinsley, Wm. J.	1894	Chicago, Ill.
329	Kinsman, Frank E.	1876	N. Leominster, Mass.
934	Kitchell, Frederick E.	1884	New York, N. Y.
1067	Klingensmith, Charles M.	1892	Aspinwall, Pa.
211	Knetzer, John E.	1890	New York, N. Y.
122	Knoll, Harry A.	1890	Buffalo, N. Y.
871	Knowles, William J.	1891	Paterson, N. J.
1368	Koons, Frank J.	1887	Oakland, Cal.
309	Korty, Louis H.	1877	Omaha, Neb.
138	Kraft, Herrmann	1885	New Haven, Conn.
341	Kramer, Amelia M.	1883	Cleveland, O.
1215	Krebs, Ida	1888	Canton, O.
1104	Kress, Elizabeth	1890	New York, N. Y.
1323	Krueger, Herman H.	1885	Chicago, Ill.
552	Lacy, D. W.	1882	Natchez, Miss.

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362	Ladd, John W.	1878	New Haven, Conn.
1479	Laird, David	1888	Savannah, Ga.
527	Lake, Mrs. Allen	1887	Lexington, Ky.
544	Lane, Charles W.	1881	Boston, Mass.
558	Lane, H. Vance	1882	New York, N. Y.
911	Lane, John F.	1891	New York, N. Y.
1221	Lane, J. Ralph	1893	Syracuse, N. Y.
349	Lane, Morgan L.	1885	Minneapolis, Minn.
1155	Lanestrem, Victor R.	1884	Chicago, Ill.
1156	Langan, Mrs. Mary R.	1891	Chicago, Ill.
1488	Lanier, J. Smith	1895	West Point, Ga.
143	Larned, S. J.	1890	Chicago, Ill.
809	Larsen, Harold O.	1888	Orange, N. J.
1528	Lash, Norwood M.	1894	Montreal, Can.
458	Latimer, Edward F.	1880	Providence, R. I.
958	Laughlin, James N.	1886	Pittsburgh, Pa.
576	Laurie, Frank Drury	1890	Chatham, Ont.
654	Lawler, Frank W.	1884	San Francisco, Cal.
213	Lawrence, Thomas M.	1885	New Haven, Conn.
1074	Lawson, George W.	1887	Richmond, Va.
1121	Lax, Edward L.	1883	Edwardsville, Ill.
259	Leathers, William F.	1886	Boston, Mass.
1229	Leckner, Alfred E.	1889	Astoria, L. I.
608	Lee, Clarence C.	1888	Philadelphia, Pa.
797	Lee, Mary F.	1891	Jersey City, N. J.
927	Lenihan, John	1883	New York, N. Y.
538	Leonard, Frank E.	1880	Chicago, Ill.
1338	Leonard, Joseph B.	1878	Oakland, Cal.
462	Leonard, Robert A.	1890	Chicago, Ill.
1093	Leslie, Charles J.	1879	Toronto, Ont.
783	Lesser, Franklin T.	1890	Ridgway, Pa.
83	Leverett, George V.	1886	Boston, Mass.
464	Lewis, Frederick P.	1882	New Haven, Conn.
1207	Lewis, Harry B.	1893	Springfield, Ill.
1330	Leypoldt, Frederick W.	1894	New York, N. Y.
170	Liesinger, Theodore L.	1887	Buffalo, N. Y.
210	Lillie, Edward E.	1879	Boston, Mass.
71	Lillie, Nathaniel W.	1877	Somerville, Mass.
673	Lillis, George F.	1887	New York, N. Y.
1339	Lindell, Payson	1890	Bradley Beach, N. J.
1035	Litton, Roland N.	1880	Chicago, Ill.
975	Lochman, H.	1879	Buffalo, N. Y.
1287	Lockhart, Margaret J.	1892	Boston, Mass.

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10	Lockwood, Thomas D.	1878	Boston, Mass.
109	Lockwood, William E.	1879	Boston, Mass.
421	Lohmes, Hardy T.	1883	Hartford, Conn.
664	Long, Thomas F.	1882	Boston, Mass.
256	Longley, Edmund W.	1881	Boston, Mass.
1545	Louis, Bernard F.	1895	Covington, Ky.
388	Loveday, Harry E.	1888	Chicago, Ill.
469	Lovell, Herbert H.	1888	Chicago, Ill.
1373	Lowman, Arthur A.	1892	Omaha, Neb.
1550	Lowry, Lewis H.	1893	Cincinnati, O.
915	Lown, William H.	1885	Mt. Vernon, N. Y.
1065	Luby, Joseph T.	1885	Chicago, Ill.
1553	Luby, Wm. H.	1895	Chicago, Ill.
897	Lucas, Cornelius V.	1883	Nyack, N. Y.
465	Luepke, Richard C.	1890	Oak Park, Ill.
445	Lufkin, George A.	1890	Boston, Mass.
370	Luscombe, Walter G.	1880	Chicago, Ill.
1167	Lynch, John A.	1892	New York, N. Y.
1129	Lynch, Margaret J.	1886	Brooklyn, N. Y.
1249	Lynch, James A.	1893	New York, N. Y.
1201	Lynde, Carlton M.	1893	New York, N. Y.
1485	Lyon, Albert H.	1895	Atlanta, Ga.
74	Lyon, Edward H.	1880	New York, N. Y.
979	Maben, J. Garrett	1888	Fort Worth, Tex.
1183	Macartney, Richard E.	1888	New York, N. Y.
47	MacCrellish, John A.	1881	Trenton, N. J.
474	Macdonald, Angus	1885	Boston, Mass.
277	Macdonald, George F.	1890	Providence, R. I.
203	Macdonald, James E.	1888	Denver, Colo.
1202	MacGougan, Fulton J.	1889	Vancouver, B. C.
1380	Mack, Edwin S.	1893	Milwaukee, Wis.
264	Mackenzie, Cecil W.	1879	Buffalo, N. Y.
1059	MacPherson, James E.	1890	Ottawa, Can.
1431	Madden, Lawrence J.	1892	St. Cloud, Minn.
287	Madden, Louis A.	1887	New York, N. Y.
1432	Maetzel, Richard	1893	New York, N. Y.
145	Magerry, James A.	1884	Pittsburgh, Pa.
512	Magerry, John H.	1884	Emsworth, Pa.
1038	Magnuson, Gustava	1892	Philadelphia, Pa.
286	Maguire, Joseph A.	1882	Albany, N. Y.
828	Maguire, Thomas F.	1881	Springfield, Mass.
669	Maguire, Thomas F.	1882	Portland, Me.
496	Mahoney, Benjamin J.	1888	Lowell, Mass.

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1112 MAHONY, PHILIP E.....1892 New York, N. Y.
392 MAIDEN, WILLIAM J.....1882 Chicago, Ill.
1527 MAISCH, JOHN K.....1896 New York, N. Y.
676 MALLINSON, CHARLES E.....1883 Duluth, Minn.
865 MANDEVILLE, FRED .....1890 Elizabeth, N. J.
732 MANGUM, WILEY P.....1881 Memphis, Tenn.
1017 MANNING, JAMES H.....1891 Albany, N. Y.
818 MANSON, GEORGE K.....1891 Boston, Mass.
97 MANSON, GEORGE T.....1879 New York, N. Y.
801 MANY, AUGUSTUS .....1882 Albany, N. Y.
1536 MARDEN, RALPH C.....1894 Manchester, N. H.
1341 MARGRAVE, CHARLES E.....1886 Alameda, Cal.
1282 MARKS, LEWIS B.....1894 New York, N. Y.
105 MARRIOTT, SAMUEL H.....1889 New York, N. Y.
363 MARSH, EUGENE S.....1880 Bridgeport, Conn.
218 MARSHALL, HOWARD P.....1885 New York, N. Y.
303 MARTIN, JOHN F.....1886 Boston, Mass.
1532 MARTIN, JOHN H.....1891 Hamilton, Ont.
861 MARTIN, PHILIP J.....1889 Elizabeth, N. J.
827 MARTIN, SAMUEL H.....1883 Pittsburgh, Pa.
386 MARTIN, T. COMMERFORD.....1878 New York, N. Y.
407 MARTIN, WILLIAM D.....1883 Long Branch, N. J.
1246 MARTIN, WILLIAM H.....1892 New York, N. Y.
1223 MARTZ, HARRY E.....1892 Chicago, Ill.
398 MASON, CARLOS L.....1890 Peekskill, N. Y.
856 MASON, FRANK C.....1877 Grand Rapids, Mich.
423 MASTERSON, ANNE T.....1883 Chicago, Ill.
724 MASTERSON, HELEN J.....1891 Chicago, Ill.
1374 MATHEWSON, WALTER B.....1894 Cincinnati, O.
1481 MAUSEAU, CARROLL M.....1892 Rio de Janeiro, Brazil.
1091 MAW, FRANK C.....1889 Toronto, Ont.
434 MAY, EDMUND S. C.....1890 New York, N. Y.
753 MAYERS, JOHN P.....1891 New York, N. Y.
495 MAYNARD, GEORGE C.....1876 Washington, D. C.
1408 MCALPIN, MARY A.....1894 Brooklyn, N. Y.
691 MCAULAY, AUGUSTUS .....1888 Springfield, Mass.
1298 MCBRIDE, HARRY D.....1894 St. Louis, Mo.
130 MCCABE, J. ALBERT.....1889 Boston, Mass.
535 MCCANN, FRANK H.....1879 Oklahoma City, Okla.
938 MCCANN, FRANK J.....1891 New York, N. Y.
646 MCCARTNEY, GEORGE .....1890 E. Vancouver, B. C.
1031 MCCLELLAN, JOHN H.....1886 San Francisco, Cal.
426 MCCLELLAND, MRS. OLIVE....1889 Clayton, Mo.

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1214	McCluer, Charles P.	1887	Tarboro, N. C.
838	McClure, Elizabeth L.	1880	Omaha, Neb.
776	McClure, William F., Jr.	1888	Cincinnati, O.
533	McClurg, Clay	1890	Columbus, O.
7	McComas, Richard T.	1878	Cincinnati, O.
826	McCoy, Hugh A.	1883	Lowell, Mass.
180	McCoy, John A.	1878	Somerville, Mass.
689	McCulloch, Alfred H.	1887	Ashmont, Mass.
1210	McCulloh, James S.	1893	New York, N. Y.
156	McCully, Harry G.	1880	Newark, N. J.
184	McDaniel, Charles W.	1879	Kansas City, Mo.
146	McDonald, Henry	1885	Boston, Mass.
308	McDonough, Frank J.	1881	Kansas City, Mo.
219	McDonough, James	1886	Brooklyn, N. Y.
409	McElligott, Eugene	1887	Butler, Pa.
473	McFarland, George E.	1880	San Francisco, Cal.
335	McFarlane, Lewis B.	1879	Montreal, Can.
48	McGahan, James P.	1889	Cleveland, O.
447	McGee, Andrew J.	1879	Chicago, Ill.
1003	McGraw, Estelle	1887	Detroit, Mich.
424	McKay, Hedley C.	1889	Boston, Mass.
718	McKee, Clinton T.	1884	Bradford, Pa.
766	McKeon, Thomas	1878	Scranton, Pa.
562	McLaren, Albert E.	1889	Eureka, Cal.
62	McLaughlin, William J.	1882	Philadelphia, Pa.
118	McLellan, Alexander	1879	Providence, R. I.
947	McMahon, John F.	1890	Pawtucket, R. I.
1381	McMahon, Owen E.	1893	Elgin, Ill.
721	McManus, Patrick J.	1888	New Haven, Conn.
860	McMauman, John A.	1879	Milwaukee, Wis.
314	McMeen, Samuel G.	1885	Columbus, O.
611	McMillin, James B.	1887	Decatur, Ill.
876	McMullen, Harry A.	1892	New York, N. Y.
655	McNally, Frank L.	1886	Seattle, Wash.
488	McNaughton, Clarence L.	1886	Chicago, Ill.
618	McNicholas, John P.	1885	Los Angeles, Cal.
1529	McNicol, Donald	1888	New York, N. Y.
270	McQuarrie, James L.	1882	New York, N. Y.
155	Meany, Edward P.	1886	Convent, N. J.
884	Meany, James J.	1891	Brooklyn, N. Y.
269	Mehaffey, James H.	1878	Wilmington, Del.
63	Mellen, Andrew J.	1883	Toledo, O.
111	Menzies, James	1882	Lowell, Mass.

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767 MERRIAM, MRS. ALFRED C....1890 Cicero, Ill.
593 MERRIHEW, JAMES .....1877 New York, N. Y.
1413 MERRIHEW, LINCOLN H.....1887 Philadelphia, Pa.
993 METZGER, ALBERT W.....1890 St. Louis, Mo.
607 MEYER, WILLIAM H. J.....1886 Aspinwall, Pa.
1120 MEYERS, CARRIE E.....1888 Brooklyn, N. Y.
1096 MILLAR, ELEANOR R.....1882 New York, N. Y.
1278 MILLER, ADDISON W.....1892 New York, N. Y.
551 MILLER, CHARLES H.....1882 Baltimore, Md.
1388 MILLER, GEORGE P.....1880 Milwaukee, Wis.
285 MILLER, JAMES H.....1888 Kansas City, Mo.
1154 MILLER, JOHN H.....1880 Washington, D. C.
610 MILLER, MARY .....1883 Philadelphia, Pa.
1188 MILLER, OCY W.....1888 Frankford, Pa.
22 MILNE, GEORGE D.....1879 New York, N. Y.
846 MILTON, WILLIAM B.....1887 Austin, Tex.
1414 MINER, MATTIE L.....1884 Wheeling, W. Va.
121 MITCHELL, JAMES E.....1878 Philadelphia, Pa.
134 MITTLESDORF, GEORGE .....1886 New York, N. Y.
966 MIX, JESSIE A.....1883 New Haven, Conn.
1263 MOELLER, GEORGE W.....1891 Oakland, Cal.
518 MONROE, CLARA L.....1890 Louisville, Ky.
1196 MONTGOMERY, RICHARD .....1883 Sacramento, Cal.
1052 MOODY, FREDERICK C.....1890 Philadelphia, Pa.
418 MOODY, JOHN F.....1889 Brooklyn, N. Y.
833 MOODY, ROBERT J.....1888 Brooklyn, N. Y.
499 MOORE, CATHERINE .....1884 Chicago, Ill.
988 MOORE, WILLIAM D.....1888 Portland, Ore.
877 MOORE, WILLIAM J.....1878 Rochelle Park, N. J.
67 MORAN, JAMES T.....1884 New Haven, Conn.
209 MORAN, JOHN M.....1879 St. Louis, Mo.
174 MORGAN, RICHARD J.....1890 New York, N. Y.
628 MORGAN, WILLIAM J., JR.....1890 New York, N. Y.
1133 MORRELL, C. LINWOOD.....1888 New York, N. Y.
1235 MORRIS, GEORGE A.....1890 New York, N. Y.
991 MORRIS, JOHN .....1881 Buchanan, Mich.
1245 MORRIS, RICHARD F.....1892 Helena, Mont.
448 MORRIS, SAMUEL .....1887 Grand Rapids, Mich.
899 MORRIS, WILLIAM P.....1880 New York, N. Y.
1394 MORRISON, ANDREW W.....1895 Brooklyn, N. Y.
1371 MORRISSON, HETTIE A.....1881 Frankfort, Ind
819 MORSE, ORLANDO S.....1879 Springfield, Ill.
194 MORTON, SHERWOOD P.....1889 Atlanta, Ga.

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53	Mosley, Charles E.	1889	Chicago, Ill.
397	Mott, Harry A.	1880	Chicago, Ill.
1101	Mott, Jessie S.	1886	New York, N. Y.
1213	Mountney, Frederick	1891	Denver, Colo.
1127	Moxham, Thomas J.	1886	New York, N. Y.
1415	Muhlheizler, Louis	1888	Pittsburgh, Pa.
739	Mullen, Nicholas A.	1882	Orange, N. J.
1184	Mumper, Abraham W.	1878	Urbana, O.
1534	Murch, James H.	1884	Montreal, Que.
1259	Murphy, Edward W.	1886	Minneapolis, Minn.
476	Murphy, Enoch L.	1885	New York, N. Y.
1445	Murphy, Henry	1895	New York, N. Y.
1073	Murphy, James J.	1892	Boston, Mass.
320	Murphy, John F.	1880	Newark, N. J.
18	Murphy, John O.	1887	New York, N. Y.
1423	Murphy, Robert G.	1894	N. Bergen, N. J.
107	Myers, Samuel H.	1884	Bridgeton, N. J.
503	Naff, William T.	1885	New Orleans, La.
1402	Nayler, Jesse	1888	Morristown, N. J.
1216	Naylon, John F.	1892	Newark, N. J.
650	Nellist, Robert	1889	Tacoma, Wash.
13	Nelson, Frank G.	1888	New York, N. Y.
600	Nelson, John	1888	Seattle, Wash.
1516	Nelson, John	1895	Omaha, Neb.
1478	Nelson, Mary K.	1894	Baltimore, Md.
419	Nesbitt, Thomas	1883	New York, N. Y.
681	Neuberth, Tillie	1883	Rahway, N. J.
56	Newberry, Samuel R.	1882	Ashtabula, O.
1514	Newins, Mrs. Louise T.	1886	New York, N. Y.
567	Newnam, Jennie M.	1890	Indianapolis, Ind.
17	Newton, Walter R.	1890	New York, N. Y.
973	Nichols, Annas L.	1883	Malden, Mass.
337	Nichols, Jonathan W.	1878	Keokuk, Ia.
120	Nicholson, Charles A.	1877	Utica, N. Y.
467	Nicholson, Walter W.	1881	Syracuse, N. Y.
1231	Niven, James	1893	Chicago, Ill.
273	Nix, Peter J.	1892	Savannah, Ga.
1365	Nixon, Arthur W.	1895	Brooklyn, N. Y.
581	Noble, Jay P.	1890	Sacramento, Cal.
1190	Noble, John M.	1890	Oklahoma City, Okla.
404	Nodes, Walter H.	1893	New York, N. Y.
59	Noone, Frank	1889	Seattle, Wash.
15	Norbury, Fannie W.	1892	Philadelphia, Pa.

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1248	Norris, Walter F.	1892	New York, N. Y.
706	Norton, Anson B.	1882	W. Roxbury, Mass.
1293	Nowell, John C.	1894	San Francisco, Cal.
125	Noyes, Walter I.	1880	Lewiston, Me.
665	Oastler, John R.	1886	Paris, France.
1327	O'Brien, James	1887	Paterson, N. J.
387	O'Brien, Louis P.	1881	Denver, Colo.
280	O'Brien, Patrick W.	1880	Leavenworth, Kan.
78	O'Brien, Richard	1877	Scranton, Pa.
620	O'Connell, Joseph D.	1891	Oakland, Cal.
353	O'Connell, Joseph J.	1878	Chicago, Ill.
1139	Odell, Deloss	1881	Springfield, O.
112	Oderman, John F.	1889	Boston, Mass.
1272	O'Donnell, John J.	1889	Minneapolis, Minn.
1142	Ogan, Frank C.	1883	Pasadena, Cal.
521	Ogden, Henry F.	1879	New York, N. Y.
672	O'Hea, J. F. X.	1889	Brooklyn, N. Y.
1511	Ohlson, Anton	1895	Tacoma, Wash.
390	Olheiser, William W.	1884	Pittsburgh, Pa.
352	Oliver, Benjamin A.	1883	Racine, Wis.
1256	Ollweiler, Peter	1889	Mt. Vernon, N. Y.
889	O'Neill, Eugene F.	1889	New York, N. Y.
864	O'Neill, Thomas	1878	New York, N. Y.
206	O'Rourke, John	1879	Brooklyn, N. Y.
57	Orr, William F.	1879	N. Adams, Mass.
1540	Osborne, John F.	1896	Philadelphia, Pa.
1454	Osterman, Albert H.	1894	Philadelphia, Pa.
1080	Outerson, James T.	1890	New York, N. Y.
64	Ovitt, Charles L.	1883	Enosburg Falls, Vt.
485	Owens, Archibald A.	1889	Montreal, Can.
442	Paca, Wm. S.	1882	Oil City, Pa.
1258	Pallies, William A.	1890	Chicago, Ill.
686	Palm, Emil	1887	Montreal, Can.
1424	Palmer, Don Alonzo	1879	Ponce, Porto Rico.
869	Palmer, Laura E.	1882	Hartford, Conn.
1240	Pankey, William A.	1893	Bluefield, W. Va.
1226	Parker, Charles L.	1887	New York, N. Y.
1398	Parker, Frank H.	1892	Boston, Mass.
404	Parker, Moses G.	1879	Lowell, Mass.
1334	Parker, Samuel F.	1891	Rutland, Vt.
756	Parker, Wallace A.	1890	Springfield, Mass.
1360	Parmele, Edwin T.	1890	Davenport, Ia.
1057	Passman, John H.	1879	Chicago, Ill.

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1455	Patten, Wm. F.	1895	Evanston, Ill.
1260	Patton, Paul H.	1890	Omaha, Neb.
821	Paul, M. Gertrude	1882	Paterson, N. J.
235	Paynter, Warren D.	1879	Wexford, Pa.
540	Payton, James R.	1888	Dayton, O.
870	Peacock, John, Jr.	1891	Providence, R. I.
1189	Peare, Frederick G.	1892	Boston, Mass.
824	Peaty, John C.	1881	Brooklyn, N. Y.
243	Peavey, James E.	1887	Cincinnati, O.
890	Peck, George W.	1879	New York, N. Y.
832	Peel, Frank	1890	Bethlehem, Pa.
1274	Peirce, Ralph S.	1893	Hinsdale, Ill.
1396	Peirce, William G. E.	1895	Chicago, Ill.
292	Perkins, Walter B.	1887	New York, N. Y.
1041	Perrella, Nicholas	1892	New York, N. Y.
415	Perrett, Irving T.	1887	Chicago, Ill.
763	Perry, Olin A.	1882	Paris, Tex.
1105	Pettit, Katherine V.	1886	New York, N. Y.
1268	Petty, George J.	1883	San Francisco, Cal.
1348	Petty, William R.	1893	Los Angeles, Cal.
1275	Peyster de, Frederic A.	1894	Chicago, Ill.
506	Phelps, Frank C.	1891	San Francisco, Cal.
764	Philip, Byron	1880	New York, N. Y.
1538	Phillips, May I.	1891	Quebec, Prov. Que.
14	Pickernell, Frank A.	1886	New York, N. Y.
523	Pierce, George B.	1881	Hyde Park, Mass.
85	Pierce, George W.	1880	Jamaica Plain, Mass.
1206	Pierce, Norman O.	1893	Denver, Colo.
850	Pigott, Thomas E.	1880	New York, N. Y.
1469	Pike, Edgar G.	1884	Houston, Tex.
1295	Pillsbury, Horace D.	1895	San Francisco, Cal.
1340	Pinkham, James B.	1886	San Francisco, Cal.
346	Piper, Albert L.	1884	Erie, Pa.
896	Pitcher, James Le Ray	1886	Brooklyn, N. Y.
282	Pitman, Charles W.	1884	Boston, Mass.
1117	Pixley, William A.	1892	Omaha, Neb.
233	Platt, Emmet P.	1890	Kalamazoo, Mich.
1254	Polk, Robert H.	1879	Memphis, Tenn.
173	Pond, George S.	1883	New Haven, Conn.
1020	Post, John	1882	W. New Brighton, N. Y.
1302	Potter, Truman A.	1895	Mason City, Ia.
1477	Potts, Joseph L.	1893	Brooklyn, N. Y.
12	Powell, Frank	1890	New York, N. Y.

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590 Powell, Thomas L.....1884 Dallas, Tex.
657 Prendergast, Cornelius S...1883 Easton, Cal.
735 Prendergast, Edmund A.....1883 Minneapolis, Minn.
312 Price, Charles W.....1882 New York, N. Y.
1018 Price, James G.....1879 Indianapolis, Ind.
1421 Putnam, Albert H.....1895 Chicago, Ill.
848 Putnam, John .....1890 West Haven, Conn.
932 Quinby, Arnot .....1882 Newark, N. J.
615 Quinlan, James T.....1889 Appleton, Wis.
613 Quinn, Francis W.....1886 Bingham Canyon, Utah
1442 Quinn, Frank J.....1875 San Francisco, Cal.
1539 Rader, Wm. L.....1882 Cincinnati, O.
922 Rae, Robert E.....1890 New York, N. Y.
1119 Ramsay, Abram M.....1892 Chicago, Ill.
1077 Ramsay, James A.....1892 New York, N. Y.
777 Ramsdell, Thomas T.....1888 Buffalo, N. Y.
1137 Rand, Benjamin F.....1890 Chicago, Ill.
1484 Rauch, William G.....1891 Atlanta, Ga.
408 Raup, Kimber C.....1880 Williamsport, Pa.
324 Ray, Marian D.....1884 Kansas City, Mo.
452 Raymond, Anna B.....1888 Chicago, Ill.
1410 Raynor, Wm. M.....1890 W. Collingswood, N. J.
515 Read, Ben S.....1888 St. Louis, Mo.
106 Redmund, Frank .....1893 Chicago, Ill.
1377 Redmund, Percy .....1894 Dallas, Tex.
1461 Reed, Thomas C.....1895 Covington, Ky.
1405 Reese, Wm. F.....1894 New York, N. Y.
1290 Reeves, Milton L.....1883 Brooklyn, N. Y.
183 Reilly, Peter T.....1887 Newark, N. J.
1106 Reilly, Robert F.....1886 New York, N. Y.
912 Reinecke, James .....1883 West Orange, N. J.
1482 Reynolds, Edwin D.....1885 Nashville, Tenn.
1427 Reynolds, Maud A.....1892 Minneapolis, Minn.
124 Reynolds, Peter G.....1881 San Francisco, Cal.
1116 Rhodes, Frederick L.....1892 New York, N. Y.
1286 Rhodes, Samuel A.....1893 Chicago, Ill.
1449 Rice, Catherine .....1894 Brooklyn, N. Y.
101 Richards, Wilton L.....1878 New York, N. Y.
1037 Richardson, John .....1891 Utica, N. Y.
461 Richardson, Lemuel D.....1887 Fargo, N. D.
886 Richardson, Samuel A.....1891 New York, N. Y.
569 Richmond, John L.....1886 London, Ont.
749 Riddel, John H.....1885 Chicago, Ill.

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685 Ridge, William R.....1889 Brooklyn, N. Y.
1520 Rieman, John .....1891 Chicago, Ill.
994 Ritterhoff, Herman W.....1880 Kansas City, Mo.
358 Robb, James .....1888 New York, N. Y.
957 Roberts, Arthur P.....1880 Buffalo, N. Y.
1425 Roberts, Francis A.....1895 New York, N. Y.
1300 Roberts, Hampton E.....1893 San Francisco, Cal.
91 Robinson, Arthur M.....1887 New York, N. Y.
863 Robinson, Henry S.....1891 Providence, R. I.
1011 Rodda, Richard R.....1881 Arvada, Colo.
1452 Rodda, Samuel E.....1895 Los Angeles, Cal.
139 Rogers, Charles W.....1890 New York, N. Y.
258 Rogers, Edward B.....1887 Albany, N. Y.
365 Rolfe, Charles A.....1877 Redlands, Cal.
369 Ronald, Walter L.....1883 Bridgeport, Conn.
550 Rood, Robert B.....1882 Concord, Mass.
142 Root, Charles M.....1879 New Brunswick, N. J.
295 Ross, Frank C.....1880 New York, N. Y.
1058 Ross, Lena B.....1889 Elmira, N. Y.
1513 Rossman, Edwin J.....1895 New York, N. Y.
1255 Rothstein, Louis .....1887 Elgin, Ill.
435 Rottger, Curtis H.....1882 Springfield, Ill.
1219 Rourke, John C.....1881 New Orleans, La.
1517 Rouse, Ada M.....1880 W. Philadelphia, Pa.
630 Rowald, Wm. F.....1887 San Francisco, Cal.
1204 Rowley, Reuben L.....1886 Brooklyn, N. Y.
859 Ruscovich, Nicholas .....1891 Newark, N. J.
1524 Russell, Robert .....1896 Brooklyn, N. Y.
1157 Ruttle, Robert J.....1889 Chicago, Ill.
873 Ryan, John .....1886 Buffalo, N. Y.
1050 Ryan, Thomas A.....1887 New York, N. Y.
571 Ryan, Thomas P.....1887 Chicago, Ill.
1131 Ryder, Jennie B.....1892 Brooklyn, N. Y.
113 Salt, Albert L.....1881 New York, N. Y.
1512 Sampson, Wm. C.....1894 Marion, Ind.
133 Sapp, Harry T.....1883 Steubenville, O.
1123 Saunders, Walter R.....1889 New York, N. Y.
678 Schaeffer, William H.....1885 Mt. Vernon, N. Y.
1097 Schmitt, Katherine M.....1882 New York, N. Y.
16 Schoch, Jacob .....1889 New York, N. Y.
1292 Schoenherr, Carl J. E.....1889 Jamaica Plains, Mass.
39 Schultz, Henry J.....1878 New York, N. Y.
1332 Schutt, Ernest E.....1890 Morrisville, Vt.

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1450	Schuyler, Mary V.	1894	Camden, N. J.
901	Scott, Edward B.	1891	Chicago, Ill.
781	Scott, Patrick F.	1881	Bradford, Pa.
33	Scribner, Charles E.	1877	New York, N. Y.
1103	Scullin, Rose	1886	New York, N. Y.
1283	See, James W.	1876	Hamilton, O.
1307	Seeley, Calvin M.	1888	Los Angeles, Cal.
526	Seely, John A.	1879	New York, N. Y.
699	Seelye, Chipman G.	1881	Pueblo, Colo.
299	Segelken, William J.	1890	Philadelphia, Pa.
1420	Seguin, Jules J.	1895	Quebec, Can.
1500	Seiberlich, Frank	1890	Boston, Mass.
45	Selden, Charles	1879	Baltimore, Md.
1314	Sexsmith, Wm. C.	1889	Binghamton, N. Y.
245	Shackford, Charles E.	1883	W. Hoboken, N. J.
842	Shaw, Joseph A.	1887	Brooklyn, N. Y.
252	Shay, Lawrence J.	1889	Boston, Mass.
785	Shea, Michael	1889	Pawtucket, R. I.
728	Shears, David G.	1879	New York, N. Y.
1393	Sheldon, Lyman W.	1893	Nyack, N. Y.
810	Sheldon, Thaddeus S.	1891	Warren, Pa.
1081	Sheridan, Anthony J.	1891	Chicago, Ill.
339	Sherwood, Edgar F.	1879	New York, N. Y.
755	Sherwood, Joseph J.	1891	Philadelphia, Pa.
868	Sherwood, William A.	1882	Mt. Vernon, N. Y.
982	Shoemaker, George E.	1892	St. Paul, Minn.
455	Short, Edward C.	1885	St. Paul, Minn.
1308	Shreiner, Mary C.	1893	Philadelphia, Pa.
449	Sibell, John A.	1889	Brooklyn, N. Y.
622	Silverman, Abraham	1887	Philadelphia, Pa.
1205	Simons, Edward G.	1892	Scranton, Pa.
44	Sise, Charles F.	1880	Montreal, Can.
227	Skolsky, Phillip Jacob	1882	Eau Claire, Wis.
757	Slack, William G.	1880	Montreal, Can.
135	Sloan, William D.	1879	Brooklyn, N. Y.
380	Smith, Alfred T.	1879	Toronto, Can.
340	Smith, Arthur S. R.	1889	Chicago, Ill.
403	Smith, Charles H.	1890	Summit, N. J.
181	Smith, Chauncey	1888	Atlanta, Ga.
545	Smith, Claude B.	1889	Atlantic City, N. J.
568	Smith, Cora E.	1886	Northampton, Mass.
1186	Smith, Edith M.	1889	Philadelphia, Pa.
80	Smith, Emor A.	1882	Hartford, Conn.

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169	Smith, Frank E.	1881	Elmira, N. Y.
638	Smith, George H.	1882	Malden, Mass.
1499	Smith, Harry Clinton	1895	New York, N. Y.
1552	Smith, Henry A.	1896	Atlanta, Ga.
1369	Smith, Martha	1894	W. Philadelphia, Pa.
1503	Smith, Reuben F., Jr.	1895	Atlanta, Ga.
579	Smith, S. Fred.	1881	Salem, Mass.
701	Smith, Sidney H.	1880	Danbury, Conn.
1145	Smith, Thomas M.	1889	New York, N. Y.
1092	Smyth, James M.	1878	New York, N. Y.
1048	Smythe, Edwin H.	1891	Chicago, Ill.
400	Snelling, Thomas	1882	Chicago, Ill.
802	Snook, Stephen D.	1880	Brooklyn, N. Y.
450	Snyder, Edwin F.	1879	Chicago, Ill.
625	Snyder, Leondo H.	1886	Sharon, Pa.
430	Soderstrom, John	1889	Buffalo, N. Y.
234	Sommers, Harry	1887	Salt Lake City, Utah
1407	Spaulding, C. Arthur	1895	Buffalo, N. Y.
1164	Speer, William J.	1892	Chicago, Ill.
1464	Speir, Morgan B.	1888	Asheville, N. C.
271	Spencer, Parker	1884	Chicago, Ill.
393	Sperry, Walter N.	1880	Derby, Conn.
1279	Spohr, Herman G.	1894	New York, N. Y.
1506	Spooner, Frank B.	1881	New York, N. Y.
623	Sprecher, George T.	1885	Norfolk, Neb.
1143	Spring, Carroll B.	1892	Minneapolis, Minn.
854	Stafford, Maurice E.	1891	New York, N. Y.
75	Stanford, Joseph D.	1879	Portland, Me.
1451	Stang, John	1880	Jersey City, N. J.
818	Stannard, George E.	1882	New Haven, Conn.
1046	Starkey, Frank R.	1891	Boston, Mass.
41	Starrett, Roswell H.	1888	New York, N. Y.
1432	Statler, Wm. M.	1891	Des Moines, Ia.
187	Stearns, James W.	1879	Jamestown, N. Y.
171	Stedman, William H.	1882	North Adams, Mass.
800	Stephenson, James R.	1885	Des Moines, Ia.
205	Stevens, H. Frederick	1883	New York, N. Y.
1496	Stevenson, Frederic A.	1893	New York, N. Y.
1409	Stevenson, Samuel B.	1893	San Francisco, Cal.
1262	Stewart, Dudley W.	1886	Waterloo, Ia.
1296	Stewart, Granville Q.	1880	San Francisco, Cal.
1321	Stewart, Harrison	1892	New York, N. Y.
1176	Stichter, Peter	1884	Chicago, Ill.

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814 Stirling, Daniel McG.....1890 St. Thomas, Ont.
710 Stitt, James K.....1883 Salem, O.
516 Stockwell, John O.....1884 Chicago, Ill.
1264 Stokesberry, Marion G.....1890 Grand Forks, N. D.
179 Stone, Anna Cora.....1881 Belmont, Mass.
1128 Stone, Charles A.....1885 Chicago, Ill.
1168 St. Peter, Philip.....1883 Chicago, Ill.
1227 Stretch, Henry L.....1878 New York, N. Y.
609 Stringer, Charles W.....1880 Hamilton, Ont.
463 Strout, Harry .....1887 Chicago, Ill.
1051 Stryker, Burdett .....1887 Philadelphia, Pa.
93 Stuart, Alexander T.....1885 Hyannis, Mass.
1016 Stuart, John A.....1891 Chicago, Ill.
750 Sullivan, Daniel J.....1883 New York, N. Y.
604 Sullivan, Jeremiah J.....1886 Sacramento, Cal.
1140 Sullivan, Maurice F.....1887 New York, N. Y.
887 Sullivan, Patrick H.....1878 Richmond, Va.
1094 Sullivan, Thomas J.....1883 Cincinnati, O.
1098 Summers, Mary S.....1887 Brooklyn, N. Y.
87 Sunny, Bernard E.....1879 Chicago, Ill.
716 Surprise, Edwin M.....1888 Boston, Mass.
1389 Sutton, Daniel A.....1890 Englewood, Colo.
166 Swaney, Frank .....1887 E. Liverpool, O.
1555 Swarthout, Ernest W.....1885 Aurora, Ind.
412 Swayze, Robert F.....1890 New York, N. Y.
207 Sweet, Walter I.....1889 New York, N. Y.
1465 Swope, Gerard .....1895 New York, N. Y.
1032 Sylvester, Henry C.....1890 Brockton, Mass.
974 Taltavall, John B.....1884 New York, N. Y.
1379 Tanner, DeWitt C.....1894 New York, N. Y.
849 Tarte, Charles E.....1881 Grand Rapids, Mich.
1010 Tatum, Katherine C.....1890 Atlanta, Ga.
1472 Tatum, Walter T.....1890 New York, N. Y.
1273 Taylor, Agnes M.....1887 Hampton, Va.
268 Taylor, Edgar L.....1884 Fort Wayne, Ind.
298 Teese, Frank L.....1885 Syracuse, N. Y.
561 Thatcher, Joseph H.....1879 Portland, Ore.
27 Thayer, Harry B.....1881 New York, N. Y.
1238 Thomas, Alfred C.....1893 New York, N. Y.
220 Thomas, Charles H.....1891 Buffalo, N. Y.
853 Thomas, Millard F.....1879 Dallas, Tex.
778 Thompson, Charles M.....1891 New York, N. Y.
322 Thompson, Charles T.....1878 Boston, Mass.

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641 THOMPSON, GEORGE K.....1882 New York, N. Y.
239 THOMPSON, JAMES W.....1880 Walton, N. Y.
1265 THOMPSON, JASPER M.....1891 Omaha, Neb.
1345 THOMPSON, JOHN W.....1879 San Francisco, Cal.
806 THOMPSON, PHILIP E.....1884 Plainfield, N. J.
1025 THOMPSON, WILLIAM E.....1882 Detroit, Mich.
475 THOMSON, MALCOLM A.....1889 New York, N. Y.
601 THROCKMORTON, FREDERICK T.1887 San Francisco, Cal.
470 THURBER, HOWARD F.....1890 New York, N. Y.
1135 THURBER, WILLIAM B.....1890 Milton, Mass.
1508 TICE, DANIEL P.....1894 Chicago, Ill.
389 TILLOU, FREDERICK .....1889 Newark, N. J.
1537 TILLY, THOMAS J.....1888 Lindsay, Ont.
1419 TINKEY, FREDERICK W.....1893 Brooklyn, N. Y.
1069 TINKLER, ROBERT G.....1881 Baltimore, Md.
950 TINNEY, FRANCIS A.....1887 Buffalo, N. Y.
557 TITUS, CLYDE L.....1882 Cheyenne, Wyo.
803 TODD, WILLIAM M.....1888 Lawrence, Mass.
933 TOEPLEMAN, FREDERICK C.....1883 Henderson, N. C.
1289 TOMAN, JOHN, JR.....1892 Chicago, Ill.
1082 TOMLINSON, FREDERICK C.....1888 Elmira, N. Y.
54 TOMLINSON, GENIE I.....1881 Elmira, N. Y.
1130 TOMPKINS, IRENE .....1890 Jamaica, L. I.
215 TOOMEY, FLORENCE T.....1890 Philadelphia, Pa.
862 TORREY, JUDSON .....1885 Wallingford, Conn.
674 TOWER, WILLIAM A.....1887 Baltimore, Md.
38 TOWEY, FRANK L.....1880 Nashua, N. H.
1013 TROXELL, HEZEKIAH P.....1878 Williamsport, Pa.
114 TRUEX, CHARLES R.....1879 Hendersonville, N. C.
760 TRUEX, WILLIAM H.....1888 New York, N. Y.
468 TUCKER, JOHN H.....1887 Providence, R. I.
787 TUCKER, WALTER R.....1883 E. Greenwich, R. I.
246 TULLOCH, GEORGE S.....1887 San Francisco, Cal.
1344 TULLOCH, JOHN W.....1882 San Francisco, Cal.
288 TUTTLE, ALONZO W.....1885 Boston, Mass.
851 TUTTLE, MERWIN D.....1889 New Haven, Conn.
621 TYLER, HENRY LYMAN.....1887 Stockton, Cal.
189 UHRIG, FREDERICK B.....1881 Kansas City, Mo.
719 ULRICH, DORA E.....1889 New York, N. Y.
313 VAIL, J. CUMMINGS.....1880 Morristown, N. J.
2 VAIL, THEO. N.....1878 New York, N. Y.
310 VAILLE, FREDERICK O.....1878 Denver, Colo.
216 VAILLE, HOWARD T.....1882 Denver, Colo.

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1304	Van Brunt, Wm. H.	1892	Long Branch, N. J.
432	Van Buren, George M.	1884	San Francisco, Cal.
1401	Van Cleve, Edwin W.	1890	Little Falls, N. J.
660	Vansize, William B.	1878	New York, N. Y.
251	Van Wyck, P. V. R.	1890	New York, N. Y.
377	Vaughan, William W.	1884	San Antonio, Tex.
1466	Vaughn, Daniel W.	1892	W. Redding, Conn.
1546	Vermillion, Thos. C.	1895	St. Louis, Mo.
1109	Vette, Edwin P.	1892	Chicago, Ill.
244	Volkmar, George G.	1889	New York, N. Y.
1055	Volkmar, William A.	1892	New York, N. Y.
1039	Vollmer, John P.	1878	Lewiston, Idaho
1448	Von Dorsten, Frank A.	1895	San Jose, Cal.
948	Vought, Frank L.	1890	Yonkers, N. Y.
1521	Vraneck, Joseph	1891	Chicago, Ill.
232	Wadland, Thomas H.	1878	Hamilton, Ont.
858	Wadsworth, Grace	1891	Brooklyn, N. Y.
348	Wagner, William K.	1880	New Bedford, Mass.
940	Wait, Mary C.	1889	Buffalo, N. Y.
546	Wakefield, Charles L.	1883	Dallas, Tex.
642	Wakefield, Fred R.	1880	Grandville, Mich.
73	Walker, Clement I.	1890	New York, N. Y.
1132	Walker, Minnie M.	1892	Brooklyn, N. Y.
902	Walker, William J.	1889	Milwaukee, Wis.
631	Wall, Charles J.	1883	Sacramento, Cal.
1107	Wallace, Celia A.	1891	Brooklyn, N. Y.
141	Wallace, William B.	1890	Atlanta, Ga.
1247	Wallis, Walter W.	1892	Harrisburg, Pa.
769	Walsh, James M.	1890	Buffalo, N. Y.
1493	Walthall, Henry B.	1893	New Orleans, La.
1438	Wardell, Jessie H.	1894	New York, N. Y.
712	Waring, Frederick E.	1881	Brookline, Mass.
1191	Warner, Ernest P.	1877	San Diego, Cal.
1169	Warner, Philander V.	1883	Chicago, Ill.
410	Wass, James K.	1886	St. Louis, Mo.
382	Watson, Thomas A.	1875	Boston, Mass.
1217	Watts, Newton C.	1892	Staunton, Va.
440	Weaver, William H. M.	1887	Macon, Ga.
1384	Webb, Louis K.	1893	Louisville, Ky.
477	Webb, Thomas D.	1887	Nashville, Tenn.
1416	Webber, Franklin G.	1892	Montreal, Can.
1489	Webber, Harry M.	1895	Chicago, Ill.
983	Webster, Harry G.	1888	Chicago, Ill.

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1242	Weeks, Reuben A.	1884 Philadelphia, Pa.
555	Weichsel, Henry	1888 Aurora, Ill.
936	Weisert, John C.	1891 Chicago, Ill.
214	Welch, James J.	1888 Buffalo, N. Y.
1312	Welch, Thomas	1879 San Francisco, Cal.
1471	Welles, Francis R.	1878 New York, N. Y.
416	West, Charles F.	1879 Boston, Mass.
774	Westbrook, William T., Jr.	1885 Philadelphia, Pa.
1324	Westervelt, Jean D.	1894 Paterson, N. J.
992	Westervelt, Reuben	1882 Jamestown, N. Y.
663	Westlake, Norton E.	1886 Cincinnati, O.
1467	Wever, Frank B.	1895 Chicago, Ill.
954	Whitney, Lambert N.	1889 Boston, Mass.
454	Wibly, Edwin	1889 Chicago, Ill.
1326	Wickham, Sydney	1894 New York, N. Y.
647	Wilde, Charles E.	1884 Grand Rapids, Mich.
668	Wilder, Henry W.	1881 Atlanta, Ga.
731	Wiley, George L.	1877 New York, N. Y.
1088	Wiley, Jacob S.	1892 New York, N. Y.
1362	Wilkens, John	1889 San Francisco, Cal.
1009	Wilkins, Channing E.	1889 Worcester, Mass.
1218	Wilkins, Frederick H.	1885 London, W. C.
81	Willard, Edmund S.	1879 Boston, Mass.
1060	Willard, Harold E.	1892 New York, N. Y.
1243	Williams, Henry C.	1888 Buffalo, N. Y.
301	Williams, John	1886 Newark, N. J.
24	Wilson, Charles H.	1877 New York, N. Y.
584	Wilson, James E.	1881 N. Cambridge, Mass.
1547	Wilson, Richard T.	1896 New York, N. Y.
437	Wilson, William H.	1879 Erie, Pa.
102	Wilt, George P.	1886 New York, N. Y.
605	Winfield, James Henry	1891 Halifax, N. S.
417	Winter, William H.	1885 Montreal, Can.
500	Wintermute, Lemuel C.	1880 Wilkes-Barre, Pa.
952	Wirth, Louis	1884 St. Paul, Minn.
1495	Wise, Patrick	1892 Chicago, Ill.
1000	Wiswell, Clay A.	1885 Denver, Colo.
880	Wolverton, Byron C.	1884 Syracuse, N. Y.
50	Wood, Francis G.	1877 Utica, N. Y.
1002	Wood, Newton O.	1891 Roanoke, Va.
1211	Woodruff, Frank L.	1890 Louisville, Ky.
752	Woods, James T.	1888 Norwich, Conn.
491	Woods, Margaret	1887 Detroit, Mich.

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709 Woomer, James M.....1882 Scranton, Pa.
1251 Wray, James G.....1893 Chicago, Ill.
828 Wright, Irvin O.....1890 Boston, Mass.
1171 Wright, Irving H.....1891 Jamaica, L. I.
361 Wright, Robert L.....1884 Richmond, Va.
110 Wright, Walter A.....1888 Newport, R. I.
878 Wyatt, Joseph A.....1889 Hempstead, L. I.
816 Yearsley, James F.....1879 River Edge, N. J.
1428 Yearsley, Thos. A.....1895 New York, N. Y.
1270 Yensen, Frederick W.....1891 Dallas, Tex.
208 Yensen, Peter .....1884 Cleveland, O.
1234 Young, William F.....1880 Richmond, Va.
248 Yost, Casper E.....1889 Omaha, Neb.
486 Zarbock, Lewis .....1884 Eau Claire, Wis.
784 Zerman, Edward B.....1885 Trenton, N. J.
1458 Zietlow, John F.....1888 Aberdeen, S. D.
804 Zietlow, John L. W.....1885 Aberdeen, S. D.
935 Zipfel, Joseph F.....1885 New York, N. Y.

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